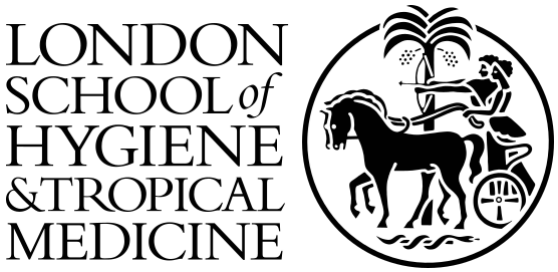


DEVELOPING A MEASURE OF UNPLANNED PREGNANCY

Geraldine Barrett

London School of Hygiene and Tropical Medicine, University of London

PhD

2002

Abstract

The incidence of unplanned pregnancy has long been used as an indicator of sexual and reproductive health. However, because of dramatic social and demographic changes, existing measures have become outdated and no satisfactory contemporary measure of this status exists.

The aim of this study was to develop a measure of unplanned pregnancy which is valid, reliable and appropriate in the context of contemporary demographic trends and social mores, and can be used to establish population estimates of unplanned pregnancy. To achieve this, a two-stage study design was employed: firstly, qualitative (inductive) methods in order to delineate the construct of pregnancy planning/intention, and secondly quantitative/psychometric methods to establish the means of measurement. At the qualitative stage, 67 depth interviews were carried out with pregnant (continuing pregnancy and abortion) and postnatal women. A conceptual model of pregnancy planning/intention was developed from these data and used as the basis for item development in the quantitative stage. Standard psychometric techniques were then employed to construct the measure and test its reliability and validity (the qualitative findings informing judgements about content and construct validity). Over 1000 women participated in the psychometric field testing.

The result of the study is a six-item measure of unplanned pregnancy - the first psychometric measure of this construct. Psychometric testing demonstrated the measure's high reliability (Cronbach's alpha >0.90; test-retest reliability >0.90) and high face, content, and construct validity. Women may occupy a range of positions in relation to pregnancy planning, and these are represented in the measure by the spectrum of scores (zero to 12). These scores provide a more sophisticated level of information about pregnancy planning than was previously available. The measure is suitable for use with any pregnancy regardless of outcome (i.e. birth, abortion, miscarriage) and is highly acceptable to women.

Table of Contents

	Page no:
Acknowledgements	10
Contributors	11
Chapter 1: Introduction	12
Chapter 2: Literature review	17
Chapter 3: Methodological overview	65
Chapter 4: Methods of qualitative stage	72
Chapter 5: Women's use and understanding of terms	91
Chapter 6: Women's intentions and contraceptive use	109
Chapter 7: Developing a conceptual model	137
Chapter 8: The influence of hindsight	154
Chapter 9: Psychometric methods ~ A brief overview	173
Chapter 10: Development and pre-testing of the items	177
Chapter 11: Methods of psychometric analysis and data collection	195
Chapter 12: Results of psychometric analyses	239

Chapter 13: Interpreting the scores 269

Chapter 14: Analysis of factors associated with pregnancy planning 284

Chapter 15: Conclusions 303

References 307

List of tables

Table 2.1: Ann Cartwright's questions 18

Table 2.2: Bone and Dunnell's questions 19

Table 2.3: Reactions to pregnancy by circumstances (Bone, 1973) 21

Table 2.4: Growth of American Families Survey 30

Table 2.5: National Fertility Survey 31

Table 2.6: National Survey of Family Growth 34

Table 2.7: National Survey of Family Growth 1995: additional questions 39

Table 2.8: Surveys of Young Women and National Longitudinal Survey of Youth 41

Table 2.9: The National Natality Survey, the National Maternal and Infant Health Survey, and the Pregnancy Risk Assessment Monitoring System 42

Table 2.10: Demographic and Health Surveys 51

Table 2.11: Psychological categories of pregnancy status 57

Table 2.12: Dimensions included in assessments of pregnancy status 64

Table 4.1: Main interviews, recruitment of sample 77

Table 4.2: Main interviews, age by outcome of pregnancy 78

Table 4.3: Nationality and ethnicity of sample 89

Table 6.1: Summary of dictionary definitions of "intend" and "plan" 111

Table 6.2: Women who expressed positive intentions to become pregnant 113

Table 7.1: Testing interviewees' accounts against the conceptual model 149

Table 7.2: Terms applied and the conceptual model 150

Table 7.3: Characteristics of interviewees by the conceptual model 151

Table 8.1: Consistency between information given in follow up interviews and information given in main interviews 155

Table 10.1: Estimated pregnancy rates according to contraceptive method in first twelve months of use 180

Table 10.2: Characteristics of pre-test interviewees 185

Table 10.3: Preferences for timing question response options 191

Table 11.1: Scoring of items 201

Table 11.2: Comparison of descriptive statistics for score totals before and after imputation of missing data 210

Table 11.3: Postal data collection for field tests 1 and 2 222

Table 11.4: Factors associated with volunteering to fill in repeat questionnaire 224

Table 11.5: Logistic regression analysis of factors associated with volunteering to complete a repeat questionnaire 225

Table 11.6: Response rates for short term test-retest 226

Table 11.7: Response rates for long term test-retest 226

Table 11.8: Characteristics of women in the field test samples 228

Table 11.9: Women's pregnancy situations 229

Table 11.10: Comparison of the age profiles of the samples with national data 230

Table 11.11 Marital status of women delivering babies compared with national data from birth registrations 231

Table 11.12: Women's place of birth and ethnicity 234

Table 11.13: Ethnicity and country of birth by centre 235

Table 11.14: Proportion of mothers born outside the UK: comparison with national data 236

Table 11.15: Characteristics of women taking part in the short term test-retest 237

Table 11.16: Characteristics of women taking part in the long term test-retest 238

Table 12.1: Frequencies of the 12 items (first field test) 240

Table 12.2: Item-total correlations 242

Table 12.3: Inter-item correlations 242

Table 12.4: Summary of application of item selection strategy 246

Table 12.5: Cronbach's alpha statistic by age group 248

Table 12.6: Short term test-retest scores 249

Table 12.7: Long term test-retest: length of time between completion of initial and repeat measures 251

Table 12.8: Long term test-retest scores 251

Table 12.9: Item responses from women with most changed scores in long term test-retest 252

Table 12.10: Findings of construct validity significance tests (part 1) 253

Table 12.11: Findings of construct validity significance tests (part 2) 262

Table 12.12: Factor matrix of factor loadings 263

Table 13.1: Item scores by total scores 272

Table 13.2: Three women who had total scores of 9 274

Table 13.3: Scores by qualitative criteria for applying the term "planned" 275

Table 13.4: Three women who had total scores of 8 275

Table 13.5: Three women who had total scores of 5 276

Table 13.6: Three women who had total scores of 4 277

Table 13.7: Three women who had total scores of 3 277

Table 13.8: Proportions of women in the three score groupings relevant to policy 279

Table 13.9: Teenage Pregnancy Strategy Evaluation information 281

Table 13.10: Teenage Pregnancy Strategy Evaluation data: scores by planned pregnancy question 282

Table 14.1: Item-total correlations and Cronbach alpha scores of 6-item measure in first and second field tests 285

Table 14.2: Comparison of descriptive statistics for score totals before and after imputation of missing data 285

Table 14.3: Characteristics of sample (combined dataset) 287

Table 14.4: Significance tests for unifactorial analyses 291

Table 14.5: Ordinal regression of pregnancy planning/intention scores 297
Table 14.6: Ethnic group by marital status 299

List of figures

Figure 2.1: The U.S. NSFG categories of intention 35

Figure 3.1: The inductive/deductive process of the study 70

Figure 5.1: Definitions of a "planned" pregnancy 93
Figure 5.2: Definitions of an "unplanned" pregnancy 93
Figure 5.3: Definitions of an "unwanted" pregnancy 97
Figure 5.4: Criteria for applying the term "planned" 100

Figure 6.1: Intentions and contraceptive use 117

Figure 7.1: Conceptual model of pregnancy planning/intention 148

Figure 11.1: Distribution of total scores (second field test) 204
Figure 11.2: Histogram of reflect and square root transformation of score total 206
Figure 11.3: Histogram of reflect and natural log transformation of score total 206
Figure 11.4: Distribution of total scores (second field test) after imputation of missing data 207

Figure 12.1: Total scores of six-item measure 247
Figure 12.2: Scores by pregnancy outcome 254
Figure 12.3: Scores by marital status 255
Figure 12.4: Scores by age group 257
Figure 12.5: Scores by age left full time education 258
Figure 12.6: Scores by broad educational level 258
Figure 12.7: Scores by country of birth (Britain or outside Britain) 259

Figure 12.8: Scores by ethnicity (White British and non-White British) 260
Figure 12.9: Scores by ethnicity (in five main groups) 260
Figure 12.10: Scores by child order (continued pregnancies only) 261
Figure 12.11: Scores by child order (actual and hypothetical) 261
Figure 12.14: Scores by left or right handedness 264
Figure 12.15: Scores by left or right handedness, according to outcome of pregnancy 265

Figure 13.1: Bar chart of scores according to outcome of pregnancy 279

Figure 14.1: Scores by age group 292
Figure 14.2: Scores by marital status 292
Figure 14.3: Scores by broad educational level 293
Figure 14.4: Scores by country of birth (Britain and outside Britain) 293
Figure 14.5: Scores by ethnic group 294
Figure 14.6: Scores by ethnic group (further detail) 294
Figure 14.7: Scores by child order (actual and hypothetical) 295
Figure 14.8: Scores by ethnicity and country of birth 298
Figure 14.9: Scores by ethnicity and marital status 299

Appendices

Appendix 1: Pregnancy status questions in sub-national U.S. studies 334
Appendix 2: Barrett G, Wellings K. 2000 Understanding Pregnancy Intentions: a problem in evidence everywhere *Family Planning Perspectives* 32;4:194 (letter) 339
Appendix 3: Pregnancy status questions in sub-national British studies 340
Appendix 4: Pregnancy status questions in other sub-national (non-UK and U.S) studies 343
Appendix 5: Qualitative stage recruitment material 347
Appendix 6: Topic guide for main interviews 352
Appendix 7: Topic guide for follow up interviews 356

Appendix 8: Coding frame for main interviews 358

Appendix 9: Extract from charting sheets 361

Appendix 10: Barrett G, and Wellings K. What is a "planned" pregnancy? Empirical data from a British study *Social Science and Medicine* (forthcoming) 362

Appendix 11: Women and contraceptive use 386

Appendix 12: Items at the beginning of pre-testing 391

Appendix 13: Items after pre-testing 396

Appendix 14: Barrett G, Wellings K. 2002 Collecting information on marital status: a methodological note *Journal of Epidemiology and Community Health* 56:175-176 401

Appendix 15: Final six-item measure 403

Appendix 16: Information sheet for field tests 407

Appendix 17: Clinic sessions attended 408

Appendix 18: Letters of invitation to postnatal women (postal) 410

Appendix 19: Repeat permission attachment - postal women 412

Appendix 20: Repeat permission attachment - women in clinics 413

Appendix 21: Short term test-retest letter of invitation 414

Appendix 22: Long term test-retest letter of invitation 415

Appendix 23: Recoding of educational level variable 416

Acknowledgements

In carrying out this study, I have benefited greatly from the help and advice of a number of people. Firstly, I would like to thank my supervisor, Kaye Wellings, for her insightful and constructive criticism and her constant interest and enthusiasm over the course of the last few years. I would also like to thank the members of my advisory group, Karen Dunnell, Anna Glasier, Janet Peacock, Sarah Smith, and Margaret Thorogood - all of whom have been extremely generous with their time and their advice at various stages of the project.

I would like to thank my clinical collaborators, Lynne Cho, Penny Edgington, Elaine Fisher, Carrie Free, Anna Glasier, Isaac Manyonda, Stanley Okolo, Catherine Paterson, Connie Smith, R.William Stones - without whose generous help, access to their patients (and therefore data collection) would not have been possible. Also, in the day-to-day visits to clinics, we were assisted by very many staff. In particular, I would like to thank Maureen Batley, Audrey Brown, Jill Brown, Jenny Charman, Sunethra Kossine, Jan Sanders, Ros Tolcher, and Maddy Ward.

I would also like to thank Rolla Khadduri, Patricia Kingori, and Maya Malalgoda for their dedicated and enthusiastic help with data collection.

Finally, I would like to thank my husband, Ashley Dyson, for his unfailing support.

Contributors:

This project was funded by a Medical Research Council/London Region special training fellowship in health services research. GB and KW conceived the study in 1997. GB wrote, and KW approved, GB's application to the MRC.

KW was supervisor to GB's PhD and provided advice throughout. GB's advisory group included:

	Organisation	*Area of expertise*
Prof. Karen Dunnell	Office for National Statistics	population statistics
Dr Anna Glasier	Lothian Health Care Trust	reproductive health
Dr Janet Peacock	St George's Hosp. Med. School	medical statistics
Dr Sarah Smith	LSHTM	psychometrics
Dr Margaret Thorogood,	LSHTM	epidemiology

KD, AG, and MT reviewed GB's proposed methodology and project progress at two meetings, one in March 1999 and one in October 1999. The latter meeting was GB's upgrading. JP provided statistical advice on two occasions (May 2000 and Aug 2001) and read a draft of chapter 14. SS provided advice on psychometric methods from June 2000 onwards, and reviewed GB's psychometric findings of the first field test in November 2000. SS also advised on the presentation of chapters nine to 13, reading several drafts of each chapter.

Rolla Khadduri carried out 14 interviews in the qualitative stage, and Patricia Kingori and Maya Malalgoda assisted with data collection in the quantitative stage.

All data handling (i.e. data entry, coding, indexing, cleaning etc) was carried out by GB, and all analysis, both qualitative and quantitative, was conducted by GB.

Chapter 1: Introduction

> *"The incidence of unintended pregnancy has long been used as a primary indicator of the state of reproductive health. However, the definition - and therefore the measurement - of this indicator has been elusive" (Trussell et al, 1999, p.246).*

The concept of an unplanned or unintended pregnancy is relatively recent, and related to the dramatic developments in contraception and fertility control that took place in the nineteenth and twentieth centuries. Fertility rates in Britain declined from 1880 onwards (and earlier in some parts of Europe). Most of this decline has been attributed to the increased use traditional methods of birth control, particularly abstinence and withdrawal, rather than artificial methods of contraception (McLaren, 1990; Szreter, 1996; Hall, 2000). Appliance methods of birth control (e.g. condom, diaphragm, sponge, and spermicides) were in existence in the late nineteenth and early twentieth centuries, but were of varying quality, availability, and expense (Leathard, 1980; Szreter, 1996; Hall, 2000). More importantly, however, such methods were of limited social acceptability given their historical association with venereal disease and prostitution, and the condemnation of their use by the Church and the medical professional who warned of the dire consequences of separating sexual activity from procreation (Leathard, 1980, Hawkes, 1996; Hall, 2000). As Hall (2000) argues, even until the 1930s or 1940s practising birth control was seen as a morally dubious exercise. However, attitudes to contraception changed over time, driven by a combination of interests, e.g. Malthusian concerns about over-population and poverty, Eugenic fears of over-breeding in the lower classes, feminist aspirations for female sexual emancipation and fertility control, and political concerns about maternal and infant mortality and the fitness of the British population (Leathard, 1980). Notably, by the mid-1930s doctors, Anglican bishops and the Ministry of Health had all publically conceded the case for birth control (Leathard, 1980). Hawkes (1996) also argues that original political anxieties about promoting non-reproductive sex (through the use of contraception) were defused by the opportunity of planning motherhood ("family planning"), and locates the development of "family planning" within a general trend of increased state intervention in

a number of areas of life, e.g. the economy, education, health and the organisation of industry. Hawkes describes the 1930s as being characterised by the motif of planning, stating that "if rationality was the philosophical motif of modernity, the action blueprint was planning" (1996, p.77). Interestingly, however, it was still many more years before contraceptive provision came within the remit, and the interest, of the medical profession (largely after the advent of the pill in the 1960s) and part of mainstream State-funded health service provision (contraception became free on the NHS only in 1974) (Leathard, 1980).

Szreter (1996) argues that since the Second World War virtually all social scientific and historical research into fertility change has been influenced by the idea or theory of "demographic transition". According to conventional interpretation, the end stage of a demographic transition entails a fall in fertility as a result of the cultural changes brought about by rising material affluence which leads to a rejection of "traditional" or "non-rational" customs and beliefs. Consequently, at the micro level it is assumed that individuals/couples see the advantages of smaller families and therefore make conscious decisions to restrict their fertility and adopt contraception to achieve their aims. In recent years, however, this interpretation of individual behaviour during the period of British fertility decline has been challenged. Both Szreter (1996) and Hall (2000) argue that historically-specific patterns of sexual behaviour and prevalent ideologies of sexuality such as "male continence" may have affected coital frequency sufficiently to affect the birth rate during this period. Fisher (2000) also provides strong evidence from oral testimonies of individuals married in the latter part of the fertility decline of the "casual, ill-informed, ill-considered way" in which many couples approached family-building during this period, and the way contraception (primarily withdrawal) was a normal part of sexual activity and could be used without particularly active or strong fertility aims on the part of couples. She concludes that the significant change in mass birth control behaviour that occurred in Britain did not require a revolutionary shift in mentality, and consequently she rejects the "demographic transition" model of fertility decline where pre-transition societies are portrayed as passive and fatalistic in their approach to fertility limitation and post-transition societies as inhabited by newly calculating individuals. However, it is this conceptualisation of "post-transition" societies, built on the premise of individual rational choice and action

(i.e. desired family size, timing of pregnancies, use of contraception to meet fertility aims), that has formed the intellectual underpinning of most demographic and social scientific research on fertility and family building during the second half of the twentieth century. Notably, it is within this scientific and political discourse that the concept of an unplanned or unintended pregnancy emerges.

The desirability of planned pregnancies has now been a long-accepted tenet of family planning and maternal and child health policy in Britain and elsewhere in the world (RCOG, 1991; Department of Health, 1992, 2001; UNICEF, 1993; Brown and Eisenberg, 1995; Lee and Stewart, 1995). The assumption of such policy is that there are a number of costs to the individual and society from unplanned pregnancies. Unplanned pregnancies which result in abortion carry a financial cost to the health care system and/or the woman herself, as well as a potential personal/emotional cost and physical risk (albeit small with legal abortion) to the woman. In Britain there are over 180,000 abortions every year, comprising a over a fifth of all conceptions (Office for National Statistics, 2000; Information and Statistics Division of NHS in Scotland, 2000), and in the U.S. it is estimated that approximately half of all unintended pregnancies end in abortion (Brown and Eisenberg, 1995). Further, women who have unplanned pregnancies which continue to term have fewer opportunities to benefit from pre-conceptual and early antenatal care (e.g. taking folic acid, giving up smoking), and there has been some evidence linking unplanned pregnancies to poor infant outcomes (Fergusson and Horwood, 1983; Baydar, 1995; Brown and Eisenberg, 1995; Montgomery et al, 1997)[1]. In Britain, the aim of reducing unintended pregnancies has recently been re-stated (Department of Health, 2001). The prevention of teenage pregnancies is also currently part of the Government agenda (e.g. Social Exclusion Unit, 1999), although there is much conflation of terms and teenage pregnancies are

[1] Unfortunately, there have been relatively few studies of the consequences of unplanned/ unintended pregnancies that continue to term. Some studies have found equivocal or small effects of unplanned pregnancy in terms of maternal behaviour and/or child outcomes (e.g. Baydar, 1995; Montgomery et al, 1997; Kost et al, 1998). Others have found that the initially-apparent effects of pregnancy planning disappear once confounding variables such as a woman's socio-economic status and educational attainment are controlled for (e.g. Sable et al, 1997; Joyce et al, 2002), and some authors have felt it necessary to comment on the potential biases in measurement that might be present due to inadequate conceptualisation of pregnancy planning/intention (e.g. Kost and Forrest, 1995; Montgomery et al, 1997; Sable et al, 1997).

generally assumed to be unplanned and unwed (MacIntyre and Cunningham Burley, 1993). Overall, unplanned pregnancies are regarded as an indicator of poor sexual health in the population (Lee and Stewart, 1995; Trussell et al, 1995; Cates, 1996; Cates and Spieler, 2001; Department of Health, 1992, 2001).

Given the public health importance of unplanned pregnancy, there have been many attempts nationally and internationally to assess its prevalence. In the last decade or so, however, there has been a growing awareness of the limitations of the means by which pregnancy planning may be assessed, particularly in the UK and the U.S. One limitation stems from the fact that when, in the mid-twentieth century, measurement of unplanned pregnancy began most births were within marriage. Hence, questions to assess unplanned pregnancy were developed for use by married women and were based on assumptions of marital family building. Radical social and demographic changes have since occurred (i.e. a greater proportion of births to unmarried women, and more pre-marital sex, cohabitation, divorce and remarriage) and the questions used to assess unplanned pregnancy urgently need updating to ensure their validity when used by women in all marital/partnership/family building situations. In Britain, calls for a new measure of unplanned pregnancy have come specifically from the Royal College of Obstetrics and Gynaecology's Working Party on Unplanned Pregnancy (RCOG, 1991), the Faculty of Public Health (Faculty of Public Health Medicine, 1991), The HEA's Expert Working Group on Teenage Motherhood and Lone Parenthood (set up in October 1996) (Wellings, 1997), the Health of Londoners Project (Newman et al, 1997), and a meeting convened by the DoH/FPA in May 1997 to discuss unintended pregnancy (personal communication).

A new tool that would allow the extent of unplanned pregnancy to be assessed in contemporary society has the potential to meet a number of policy and public health needs. Firstly, the production of new population estimates would be possible, thereby providing valuable information about an important aspect of sexual public health. Secondly, the tool could be used to measure outcomes in a variety of situations, e.g. the evaluation of policy initiatives such as the Sexual Health Strategy (Department of Health, 2001), the evaluation of family planning and sexual health services, and the evaluation of research interventions.

At the moment, proxy outcome measures such as rates of abortion or teenage pregnancy tend to be used, with obvious limitations. Finally, a new tool would allow some of the "conceptual slippage" between unplanned pregnancy, teenage pregnancy, and abortion to be redressed by enabling more accurate investigation into the circumstances leading to, and the long term outcomes resulting from, each of these pregnancy situations. For instance, research is urgently needed on the long term outcome of teenage pregnancies (i.e. successful mothering, well being of child, life chances of the mother) comparing the influence of "unplannedness" with structural variables such as marital status and socio-economic position.

In 1998, I was awarded funding via an MRC special training fellowship (under the supervision of Kaye Wellings) to begin a study which aimed to develop a new measure of pregnancy planning. This thesis documents the rationale and methods by which the measure was developed. The thesis is arranged in three main sections, corresponding with the stages of the study. The first stage consisted of a review of the literature (chapter 2) to examine national and international attempts at measurement of unplanned pregnancy and to identify any methodological developments in assessment of pregnancy planning. Building on the insights from the literature, I developed a plan for the study (chapter 3) utilising two distinct methodological approaches. Consequently, the two subsequent stages comprised: 1) a qualitative phase, addressing the definitional issues relating to unplanned pregnancy (chapters four to eight); and 2) a quantitative phase, addressing the means of measurement (chapters nine to 12). In the final part of the thesis (chapters 13 and 14), I discuss how the scores of the measure may be interpreted and present an analysis of data intended to inform future research on this topic.

Chapter 2: Literature review

There have been many attempts at categorisation and measurement of unplanned pregnancy. In this chapter I outline the main approaches taken in large and small scale surveys. Specifically, I examine the experiences of British and U.S. national studies (within the policy contexts of these countries) and the main international studies. I also assess the forms of assessment included in a range of Western sub-national studies and discuss the contribution of psychological/psychotherapeutic and qualitative studies in this area.

Measuring pregnancy status in Britain: a history

The first attempt to measure pregnancy planning status in Britain was made by Ann Cartwright in a survey in 1967 (Cartwright, 1970). According to Cartwright, the main question her survey was trying to address was "How can we achieve freedom from unwanted fertility?". Hence, the survey aimed to describe the obstacles to the use of effective contraception. The attempt to measure pregnancy status was simply one aspect of a range of descriptive data which could be used to identify areas of contraceptive need. The survey used a random sample of legitimate births in 12 areas of England and Wales. In over 80% of the sample, the survey team attempted to interview the mother (and in the remainder, the father). A response rate of 83% (1495/1800) was achieved with the women. The survey reflects the social mores of its time in that only legitimate births were selected "because of the difficulty of following up parents of illegitimate children and the possible embarrassment this might cause" (Cartwright, 1970, p.1). Data were collected between October 1967 and May 1968, and interviews were carried out when the survey infant was between five and seven months. The question Cartwright (1970) used to assess pregnancy status is shown in table 2.1. This question asks about reactions to the pregnancy of the most recent birth (the survey infant) and all previous live births. Pregnancies about which the mother was "sorry it happened at all" or "rather it happened a bit later" were classified as unintended/unplanned. The data this question provided led Cartwright to conclude that

Table 2.1: Ann Cartwright's questions

Study	Survey Information	Question
Cartwright, 1970	Year of survey: 1967-8 Included: 1495 women with a legitimate live birth Pregnancy status questions asked about most recent birth (5-7 months ago) and any previous legitimate births	'Apart from what you feel now - looking back to the time when you found you were pregnant - at the time would you rather it happened a bit later or earlier or were you pleased when you were pregnant then or sorry it happened at all?' Pleased = planned Rather earlier = planned rather ..later = mistimed (unplanned) sorry ... at all = unwanted (unplanned)
Cartwright, 1976* Cartwright, 1988 Fleissig, 1991	Years of surveys: 1973, 1984, 1989 Included: 1973:1437 married women 1984:1508 women (married and single) 1989: 1483 women (married and single) Pregnancy status question: 1973: legitimate live births 1984: all live births 1989: all live births	"1) When you first found out you were pregnant, how did you feel about it then? Would you rather it had happened a bit later or were you pleased you were pregnant then, or sorry it had happened at all? 2) Around the time you became pregnant were you or your husband or partner generally using a method of birth control? 3) So would you say you intended to become pregnant that time or not?" Answer to question 3 defines unintended/unplanned (* question 1 in 1976 still included the 'rather it happened a bit earlier' category)

Table 2.2: Bone's and Dunnell's questions

Bone, 1973 Bone, 1978	Years of survey: 1970 and 1975 Included: 1970: 2520 married women aged 16-40 and 974 single women aged 16-35; 1975: 3898 ever married women aged 16-55 and 749 single women aged 16-40 Pregnancy status questions only asked of all legitimate births and current pregnancies	Long series of questions for each birth. From these questions pregnancy status was defined on the following criteria: Planned: pregnancies where couples stopped contraception in order to have a child Unplanned: pregnancies which occurred before couples started using contraception Unplanned and accidental: pregnancies which occurred when couple "took a chance", and pregnancies which occurred while the couple were using contraception Bone also uses Cartwright's (1970) question, however calls this 'reactions to pregnancy'. Bone uses the 'sorry it happened at all' category to define 'unwanted' pregnancies.
Dunnell, 1979	Year of survey: 1976 Included: 6589 women (married and single) aged 16-49 Pregnancy status questions asked of all pregnancies (including live and still-births, miscarriages, abortions, and current pregnancies)	"When you became pregnant that time would you say you were trying to get pregnant or not trying to get pregnant? IF NOT: "Would you say then it was a complete accident, a kind of accident on purpose, or did you just not mind if you got pregnant?

"about a third of the mothers' pregnancies were unintended" and that "just under half these failures arose when they were not attempting to use any method of birth control" (Cartwright, 1970, p.11). Following the question on reactions to the pregnancy, Cartwright asked a question on contraception: "round about the time you became pregnant were you and your husband using any method of birth control?". Twenty nine per cent of women answered this question positively for the birth of the survey baby, however "nearly a third of these mothers said that when they first found they were pregnant they were pleased" (Cartwright, 1970, p.11). Cartwright presented data which showed that in each reaction to pregnancy there were contraceptive users and non-users, however she only comments briefly on this inconsistency: "Obviously it was a difficult assessment to make in retrospect and their comments suggest that many had mixed feelings ... others seemed to have made deliberate mistakes" (1970, p.11-12).

The next attempt to measure pregnancy status came from Margaret Bone in 1970 (Bone, 1973). Bone was commissioned by the Department of Health and Social Security "to describe and assess the adequacy of the existing family planning services in England and Wales and to suggest fruitful lines of development to ensure that everyone needing advice on contraception could obtain it without difficulty" (Bone, 1973, p.9). Like Cartwright (1970), Bone used an interview survey, the data collection for which was carried out May to August 1970. 2520 interviews with married women aged 16-40, and 974 interviews with single women aged 16-35, were conducted. Only married women were asked about their pregnancies (including abortion). The way Bone categorised pregnancy status is shown in Table 2.2. The classification is based on a mixture of questions about intentions and contraceptive use. From these data Bone concluded "only 46% of last pregnancies were planned, in the sense that the couples stopped contraception in order to have a child" (Bone, 1973, p.45). The limitation of Bone's question is that couples who did not start contraception as they intended to have a child are excluded from the category of "planned". Bone acknowledges this limitation herself (Bone, 1973, p.45).

Bone also included Cartwright's (1970) question on pregnancy status but specifically terms it "reactions to pregnancy" in her survey, and uses Cartwright's category of "sorry it

happened at all" to identify "unwanted" pregnancies (16% of all pregnancies in previous year) (Bone, 1973, p.46). From the data presented, it becomes clear that reactions to pregnancy (Cartwright's question) and circumstances in which the pregnancy occurred (Bone's definitions) are not entirely congruent (table 2.3).

Table 2.3: Reactions to pregnancy by circumstances (Bone, 1973)

Reaction to last pregnancy	Circumstances in which last pregnancy occurred			
	Stopped precautions to have child	Before starting precautions	When took a chance	Whilst taking precautions
	%	%	%	%
Pleased	81	53	37	24
Wished it had happened earlier	16	9	7	5
Wished it had happened later	2	19	19	19
Sorry it happened at all	1	16	33	48
Didn't mind	-	2	2	1
Other	-	2	2	1
Not known	-	-	-	1

Cartwright's response to the limitations of her "reactions to pregnancy" question, highlighted by Bone (1973) and her own question on contraceptive use, is shown in her 1973 study, *How Many Children?* (Cartwright, 1976). The focus of the *How Many Children?* study was on married people's intentions regarding family size and spacing, the factors related to these intentions, and couples' success in achieving their intentions. The measure of pregnancy status was a tool in this process. The questions Cartwright used to assess pregnancy status are shown in Table 2.1. The original question on reactions to pregnancy was kept, followed by the question on contraceptive use (which was also used in the previous survey). However, women were then asked a third summative question which asked them directly if they had intended to become pregnant. The answer to the third question defined an unintended/unplanned pregnancy (terms which Cartwright used interchangeably).

In the *How Many Children?* study, Cartwright again acknowledged the inconsistency between women's reactions to their pregnancy and their contraceptive use, and their intentions (as stated in response to the third question) and contraceptive use:

> "Altogether 61% of the mothers said about the conception leading to the survey baby that they were not using any method of contraception, they intended to get pregnant, and they were either pleased they were pregnant then or would have preferred to be pregnant earlier. At the other of the scale 14% were using some method of birth control, did not intend to become pregnant, and were either 'sorry it happened at all' when they found they were pregnant or would have liked the pregnancy to be later. This leaves a quarter of the mothers with reactions which were mixed or 'inconsistent' with their actions (Cartwright, 1976, p.21).

Margaret Bone carried out another survey of family planning services in 1975, after the introduction of free contraception in 1974 (Bone, 1978). It was a similar format to her previous study (Bone, 1973), but extended to include ever-married women aged 16-55 and single women aged 16-40. As before, only married women were asked about their pregnancies, and the same definitions of pregnancy status were used (table 2.2).

In 1976, Karen Dunnell carried out the *Family Formation* study, in which 6589 women aged 16-49 were interviewed (Dunnell, 1979). In this survey, Dunnell tried to estimate the extent of cohabitation and pre-marital sexual activity as well as to examine the family building patterns of married couples. Dunnell's question to elicit pregnancy status is shown in table 2.2, and was asked of all women, not just married women. The question is interesting in that it acknowledges there might be pregnancies which were intended by the woman but not overtly planned by the couple ("a kind of accident on purpose"), or that a woman might not have any particular intentions ("just not mind if you got pregnant"). In her report, Dunnell reports pregnancy status by the categories in her question rather than interpreting the categories as unplanned or unintended.

In the 1980s two surveys were carried out by Ann Cartwright and colleagues which assessed pregnancy status (Cartwright, 1988; Fleissig, 1991). The studies were carried out five years apart, in 1984 and 1989, and both used the same methodology: a random sample of all births (not just those to married women), with postal questionnaires sent to women

three to four months after delivery. Both studies used Cartwright's questions to assess pregnancy status (see table 2.1). The only modification to Cartwright's questions was that the category "rather it happened a bit earlier" was removed from the first question, which does not substantially alter the meaning. It is apparent in Cartwright's reporting of the 1984 survey that she was aware that the ordering and wording of the questions on pregnancy status might have affected the replies:

> "The context in which the question on intentions was asked may have influenced replies as mothers were asked to think first about their initial reactions to the pregnancy and then about their behaviour around the time of conception. The precise wording is also relevant. Intending to do something is possibly rather less definite than planning to do so: planning may seem to imply taking action, intending more a state of mind" (Cartwright, 1988, p.249).

It is notable that by this time both Cartwright (1988) and Fleissig (1991) generally call the pregnancies "unintended", rather than using the terms "unintended" and "unplanned" interchangeably. Cartwright also reports, as in her previous surveys, that reactions to pregnancy, contraceptive use, and stated intentions are not always congruent: "among those who had not intended to become pregnant, over a third (37%) said they were pleased when they found they were, nearly half (47%) would rather it had happened later, [and] 15% were sorry it happened at all" (1988, p.249). Cartwright also concludes "that 'intentions' seem somewhat indefinite for some couples as 14% of those who said they had intended to become pregnant also said they had been using some method of birth control around the time they became pregnant" (1988, p.250).

Despite the ambiguities highlighted by Cartwright, the estimates of unintended pregnancy produced by Cartwright (1988) and Fleissig (1991) are the last national estimates available in Britain. In the 1984 survey, 27% of the live births sampled were classified as unintended according to their methodology (Cartwright, 1988), and in the 1989 survey it was 31% (Fleissig, 1991). The Fleissig data were applied to information on live births and combined with data on abortions (presumed to be unintended pregnancies) in order to produce estimates of rates and frequencies of unintended pregnancy for 1989 (Faculty of Public Health Medicine, 1994; Allaby, 1995).

Despite the wide quotation and use of the Fleissig data (e.g. RCOG, 1991; Faculty of Public Health Medicine, 1991, 1994; McColl and Gulliford, 1993; Allaby, 1995; Newman et al, 1997; Family Planning Association, 1999), some question has been raised over the validity of the estimates. A letter of response to Fleissig's paper was published in the BMJ (Everett, 1991) and has been widely quoted since. The letter detailed a study which was carried out in Alton in 1989 by 13 general practitioners. Of 312 pregnancies presented in early gestation, 40% were unplanned (unplanned was not defined, nor is there any report on how it was ascertained). The unplanned pregnancies were divided into wanted (22%), uncertain (5%), and unwanted (13%) (again, these terms are not defined). Of the 238 live births that resulted, 27% had been unplanned. However, Everett reported that at the first postnatal visit, when the midwife asked whether the pregnancy had been planned or not, the figure fell to 15%. Everett attributed this to "the natural adaptation and amnesia that occurs in these circumstances" (1991, p.790). Regardless of whether the attribution to amnesia is correct or not, Everett's point is an important one: the time at which pregnancy status is elicited may affect its measurement, i.e. the answers women give when pregnant may differ to the answers they give after birth. So far, no work has been carried out to investigate this.

One other national survey has included an assessment of pregnancy status, although not for the purpose of producing prevalence estimates of unplanned pregnancy. The National Child Development Study, a longitudinal study of 17414 children born in the first week of March 1958 originally designed to investigate factors associated with stillbirth and death in early infancy, followed up the children at ages 7, 11, 16, 23 and 33. At age 33, the study participants (about 8000 at this stage) were asked for each pregnancy whether they had been "planning to have a baby around this time?" (Kiernan, 1997). There was wide variation in the time lengths since pregnancy, ranging from current pregnancies to pregnancies which occurred over ten years before.

In summary, over the last 35 years in Britain, a number of attempts have been made to assess pregnancy status on a national basis. Ann Cartwright's questions are the most influential by virtue of the fact that they have been used most frequently, but Margaret Bone and Karen Dunnell have also made important contributions. Interestingly, in reporting their

findings, neither Cartwright, Bone nor Dunnell consider the measurement of pregnancy status problematic. In all the studies, no description is given of how the questions were developed or why particular categories of reply were used. (Cartwright, 1970, 1976; Bone, 1973, 1978; Dunnell, 1979, Cartwright, 1988, Fleissig, 1991). There is also no evidence of qualitative or other empirical work being carried out on pregnancy status prior to the development of the questions (although Bone used some "focussed but loosely structured interviews" to inform her survey generally (1973, p.9)). Only in the 1980s does Cartwright (1988) seem to begin to question the possible limitations of her questions on pregnancy status. To criticise is not to diminish the important contributions of Cartwright, Bone, and Dunnell. The focus of their surveys was primarily contraceptive use and family formation, and the questions on pregnancy status were a small part of these surveys. At the time of the surveys, there were still high rates of birth within marriage and the majority of sexual activity took place within marriage; this made questioning more straightforward as women tended to be in similar situations. Also, widespread free contraception only became available during the 1970s, the broad assumption being that unplanned pregnancies occurred because of deficiencies in family planning services. The expectation that unplanned, unintended, or unwanted births would decrease as women were given the tools with which to rationally plan their pregnancies was reasonable. It is only with current knowledge that we can see that these expectations have not been met, and it is now apparent that intentions, planning and decision-making around pregnancy (and therefore measurement of pregnancy status) is likely to be more complicated.

Recent calls for a measure of pregnancy status in Britain

Unplanned pregnancy has been a concern of policy and government in Britain throughout the last decade, although has often been conflated with teenage pregnancy or pregnancy to unmarried mothers. In 1991, the Royal College of Obstetricians and Gynaecologists published the report of a working party formed to address the issue of unplanned pregnancy and to suggest ways in which it could be reduced (RCOG, 1991). Published data on unplanned pregnancy were summarised in the report, and the working party shows

awareness of the potential complexity and fluidity of women's situations in early pregnancy:

> "A pregnancy may have been planned and intended yet, for a number of reasons, may become unwanted; on the other hand an unplanned pregnancy may become wanted. The term 'unwanted' does not convey the ambivalence felt by many women in categorising a pregnancy in this way. Most women on finding themselves unexpectedly pregnant experience distress that such a major life event, with potentially adverse consequences, should have occurred without planning but, at the same time, pleasure that they are capable of conception and of having a child. Those pregnancies that end in legal abortion represent only a proportion of all unplanned pregnancies" (RCOG, 1991, p.10).

The RCOG working party went on to make recommendations which they believed would help reduced the number of unplanned pregnancies. These included recommendations on sex education in schools, the training of health professionals, the provision of contraceptive services, the provision of abortion services, and the need for data collection. In terms of data collection, they recommended that surveys of women aged 15 to 45 were carried out regularly to assess the occurrence of pregnancy by age, relationship status, the use of contraception and the frequency of legal abortion. They recommended that the surveys "should aim to classify pregnancies as planned and unplanned and the resulting children as wanted and unwanted" (RCOG, 1991, p.23).

The early 1990s, with the introduction of the internal market in the NHS, was a time when the need to evaluate services and assess outcomes became important and the role of public health in assessing the health needs of the population became explicit (Faculty of Public Health Medicine, 1991; Department of Health, 1992). The *Health of the Nation* targets were published in 1992, and included the objective of reducing the number of unwanted pregnancies as part of an overall aim of improving sexual health (Department of Health, 1992, p.21). However, the specific target set in order to assess achievement towards the objective only included conceptions amongst the under 16s. A footnote for this target sought to explain the rationale for this limitation:

> "Information about all unwanted pregnancies is difficult to collect, but it is

> reasonable to make the general assumption that pregnancies in those under 16 are not wanted. It is a matter of concern that the conception rate in this age group is increasing. Measures to achieve this target may also be expected to exert a similar effect on unwanted pregnancies in those over 16" (Department of Health, 1992, p.22).

Also, in the early 1990s, three publications by the Faculty of Public Health Medicine examined ways of assessing contraceptive services (Faculty of Public Health Medicine, 1991, 1994; McColl and Gulliford, 1993), all of which discussed the need for valid outcome measures. In the first publication, *UK Levels of Health,* the authors said that the obvious outcome measure was "the extent to which a conception is planned or unplanned". However, they continued:

> "...for ethical and technical reasons, it is difficult to collect valid data on this subject. Possible proxy measures of wantedness such as conceptions leading to adoption or conceptions leading to abortion also cannot be used because they are impossible to interpret" (Faculty of Public Health Medicine, 1991, p.31).

In the end, the authors compromised on outcome measures of conception rates in minors (all conceptions being considered undesirable), and process measures such as the proportion of abortions after 13 weeks gestation, the availability of free condoms, the proportion of abortions available on the NHS, and training requirements for health professionals. They identified "a measure of wantedness of conceptions" as a high-priority need, and recommended regular surveys using valid measures of this "wantedness" with representative sample populations" (Faculty of Public Health Medicine, 1991, p.35).

The two subsequent Faculty of Public Health publications addressed the same question (McColl and Gulliford, 1993; Faculty of Public Health Medicine, 1994). McColl and Gulliford (1993) followed Clarke's (1988) suggestion that total period fertility rate and total period legal abortion rate should be used for monitoring of family planning services, but acknowledged that the total period legal abortion rate as an indicator of failed contraception may be an unfair reflection on local health services as "the reasons for the increase in abortions is complex" (McColl and Gulliford, 1993, p.41). They followed the recommendations made in *UK Levels of Health* (Faculty of Public Health Medicine,1991)

by including abortions after 12 weeks and conceptions in minors as outcome measures. The third publication, *Measuring the Effectiveness of Contraceptive Services* (Faculty of Public Health Medicine, 1994), explicitly considered whether it was possible to measure the rate of unintended pregnancy using routinely collected data, but concluded that it was not. They compromised on conceptions in minors because "all pregnancies among girls below the legal age of consent are undesirable, even if not all are unintended" (Faculty of Public Health Medicine, 1994, p.4), the total period abortion rate (even though they believe it is a very limited way of gauging unintended pregnancy), and uptake of contraceptive services.

The call for a measure of pregnancy status as an indicator of outcome for family planning services also came from Newman et al (1997). Newman et al carried out a survey which examined contraceptive and abortion services across London. One of their key recommendations for further research was "the development of valid and reliable outcome measures for contraception and abortion service provision" (1997, p.108). Mark Newman felt that the abortion rate was not a valid indicator of success of contraceptive services, but that this was all that had been available during the study; he believed that a measure of unintended/unplanned pregnancy would have been more valid, if one had been available (personal communication).

In the latter half of the 1990s, policy attention has particularly focussed on teenage pregnancies with a report on teenage sexuality and fertility commissioned by the Department of Health (Wellings et al, 1996), an Expert Working Group on Teenage Motherhood and Lone Parenthood convened by the Health Education Authority (Wellings, 1997) and the report by the Social Exclusion Unit (1999). Although teenage pregnancy does not necessarily equate with unintended or unplanned pregnancy or with lone motherhood, there are often overlaps. For example, Wellings' (1997) recommendation regarding teenagers is equally applicable to older women:

> "An understanding of the extent to which sexual activity, contraceptive competence, conception and having a child are under conscious control is essential to the design of effective interventions. A useful focus of research, for example, would be on the extent to which pregnancies are the result of failed contraception, failure to use contraception and/or conscious decision,

and the overlap between these variables" (Wellings, 1997, p.28)

The most recent policy focus on unintended pregnancy has been as part of the National Strategy for Sexual Health and HIV. The consultation document of this strategy was published in July 2001 (Department of Health, 2001). The strategy has five aims, one of which is to "reduce unintended pregnancy rates". The other four aims are focussed on the prevention and treatment of HIV and sexually transmitted diseases. Currently in the consultation document it is suggested that the main intervention to reduce unintended pregnancies will be a media campaign (Department of Health, 2001, p.17). This media campaign will also focus on the prevention of sexually transmitted diseases, and will complement interventions already put in place by the Teenage Pregnancy Strategy. Unfortunately, at the moment any suggestion of how unintended pregnancy rates may be measured is absent.

Measurement of pregnancy status in the U.S.

The United States of America has, by far, the most extensive history of attempts to measure pregnancy status, and is a useful addition to the British experience.

The first national U.S. surveys to include questions on pregnancy status, the Growth of American Families surveys, were carried out in 1955 and 1960 (Freedman et al, 1959; Ryder and Westoff, 1971). The surveys were used to describe contraceptive use and family building patterns and intentions of Americans in order to explain the post-war "baby boom" and to predict future fertility trends (Freedman et al, 1959, pp.1-13). The planning status of pregnancies was derived from a long series of questions on contraceptive use, birth of babies, and intentions. The categories of planning status are summarised in table 2.4, along with the questions on 'wantedness'. In the 1955 study, Freedman et al concluded that "about one-quarter of all pregnancies were planned by discontinuing contraception in order to have a child" and "one pregnancy in eight was accidental, occurring in spite of preventive efforts" (1959, p.70). According to Freedman et al, only a minority of couples were "the model of the rational, highly planned family" (1959, p.68); instead they found

that "the planning efforts of most couples are less rigorous or less successful" (1959, p.69).

Table 2.4: Growth of American Families Survey

Survey	Survey information	Questions
Growth of American Families	Years of survey: 1955 and 1960 Included: 1955: white married women, aged 18 to 39; 1960: as 1955, but also included women aged 40-44 and small sample of black women Women asked about planning status of all live births, still births, miscarriages, and current pregnancies (interviews) 'Wantedness' question asked about last pregnancy	*Planning status* Long series of questions produced the following categories: 1) Pregnancies of couples who never used contraception 2) Pregnancies of couples which occurred before use of contraception started Pregnancies which occurred after contraceptive use began: 3) Planned - contraception was stopped in order to have a child 4) Accidental - conception occurred when some method was being used to avoid it 5) Other unplanned - conception occurred when contraception was stopped for other reasons than the desire for a child (e.g. ran out of supplies, couldn't use method while away visiting, etc) *Wantedness* Before your last pregnancy began did you really want a(nother) child at some time in the future or would you just as soon not have had one? *(If wanted child)* How strongly did you feel about that? *(If child not wanted)* How did you feel about it when you learned you were going to have a child?

In 1965 and 1970, the National Fertility Surveys were carried out (with respective follow up interviews in 1969 and 1975) (Ryder and Westoff, 1971; Westoff and Ryder, 1977). Data were collected by face-to-face interviews and married women of all ethnicities were included. The surveys assessed pregnancy status by a mixture of questions on 'wantedness' and intentions (table 2.5). Ryder and Westoff found in the 1965 study that only 20% of the couples had completely planned pregnancies, i.e. that "the occurrence of every pregnancy was the consequence of deliberate interruption of contraception in order to conceive" (1971, p.236). They considered this to be "an extraordinarily low level for a population generally considered to be relatively sophisticated in contraceptive matters" (1971, p.234).

Table 2.5: National Fertility Survey

Survey	Survey information	Questions
National Fertility Survey	Years of survey:1965,1970 Included: 1965: married women under age 55 1970: ever-married women under age 55 Women were asked about each pregnancy (including current pregnancy) (interviews)	*1965 questions:* Planning: 1) Under which of these circumstances did this pregnancy occur? Respondents shown a card with three options: a) While using a method and did not want to become pregnant at that time; b) While not using a method but did not want to become pregnant at that time; c) When stopped using a method in order to have a child. Wantedness: 2)Before you became pregnant this time, did you want to have a(nother) child sometime? 3) Did your husband want to have a(nother) child sometime? *1970 questions:* Planning: 1) Did that pregnancy occur because you deliberately *stopped* using a method in order to have a child, or did it happen even though you did *not want* to get pregnant at that time? Wantedness: 2) Just before you got pregnant that time, did your husband want a child but not until *later*, or did he really want *no more* children? 1) Did you yourself want a child but not until *later*, or did you really want *no more* children?

One of the interesting features of the National Fertility Surveys is the consideration given by Ryder and Westoff to the methodological limitations. With the 1965 survey, they were aware of "the inconsistency of response ... for almost all measures at the individual level" (Ryder and Westoff, 1971, p.372). They concluded that considerably more attention needed to be paid to the "data collection problem" and that maybe questioning should be confined to events immediately preceding the interview. By the 1970 study, their misgivings had increased. In particular, they had concerns about their questions on pregnancy status. Westoff and Ryder were worried that "retrospective assessments" were being made with regard to both planning and wantedness. For example, with planning, they found that "a much higher proportion of respondents report that they became pregnant immediately after stopping contraception in order to conceive than is credible from our knowledge of fecundability. We suspect ... that failures are being reported as successes" (Westoff and

Ryder, 1977, p.252). Similarly, with the 'wantedness' questions they found that a substantial number of births were reported as unwanted "not because their occurrence pushed the respondent's parity above the wanted level but because other circumstances surrounding the birth led the respondent to judge it as a completely unsatisfactory event" (1977, p. 250). Such circumstances included premarital conception, children with major mental or physical defects, and severe economic distress associated with too many children. Westoff and Ryder also considered the conceptual difficulty of the question on 'wantedness':

> "For example, a couple's future intentions with respect to childbearing are often unclear and ill-defined, and probably change from time to time in a substantial proportion of cases. Accordingly, there may be no satisfactory unequivocal answer that some respondents can give to the question whether, at a particular time in the past, they wanted no more children. One important source of such legitimate ambiguity may be a continuing difference of opinion between the spouses. ... As another example, it must surely be common for a couple to decide not to have a child at a particular time, and use contraception to achieve that objective, but leave completely open the question of whether they might at some future date choose to have a child. Should their contraceptive efforts fail, they will have no simple 'yes' or 'no' answer to give to the question of whether they wanted no more children (Westoff and Ryder, 1977, p.250).

In the early 1970s, the National Survey of Family Growth (NSFG) was begun by the National Centre for Health Statistics of the U.S. Public Health Service. The previous National Fertility Surveys and the Growth of American Families studies had been carried out by universities in conjunction with independent research companies. However, by the 1970s, collection of data on fertility, contraception and family building was considered of sufficient importance to become federally sponsored (Mosher and Bachrach, 1996). In terms of providing data on pregnancy status in the U.S., the NSFG is now the most important survey (Brown and Eisenberg, 1995). It has provided a wealth of information on pregnancy status (e.g. Dryfoos, 1982; Williams, 1991; Williams and London, 1994; Kost and Forrest, 1995; Finer and Zabin, 1998; Kost et al, 1998; Henshaw, 1998; Trussell et al, 1999; Zabin et al, 2000) and other aspects of fertility (e.g. Williams, 1994; Mosher and Bachrach, 1996; Peterson et al, 1998; Fu et al, 1999; Kahn et al, 1999; Glei, 1999; Trussell and Vaughan, 1999; Williams et al, 1999; Ranjit et al, 2001).

In the NSFG, pregnancy status is assessed by a series of questions on intentions and wantedness (table 2.6). From these questions, women are allocated to specific categories of intended, mistimed, and unwanted (see also figure 2.1) (Brown and Eisenberg, 1995, p.250):

Intended: Intended at conception, i.e. wanted at that time or sooner (irrespective of contraceptive use)

Mistimed: Conceptions that were wanted by the woman at some time, but which occurred sooner than they were wanted (irrespective of contraceptive use)

Unwanted Conceptions that occurred when the woman did not want to have any more pregnancies at all (irrespective of contraceptive use)

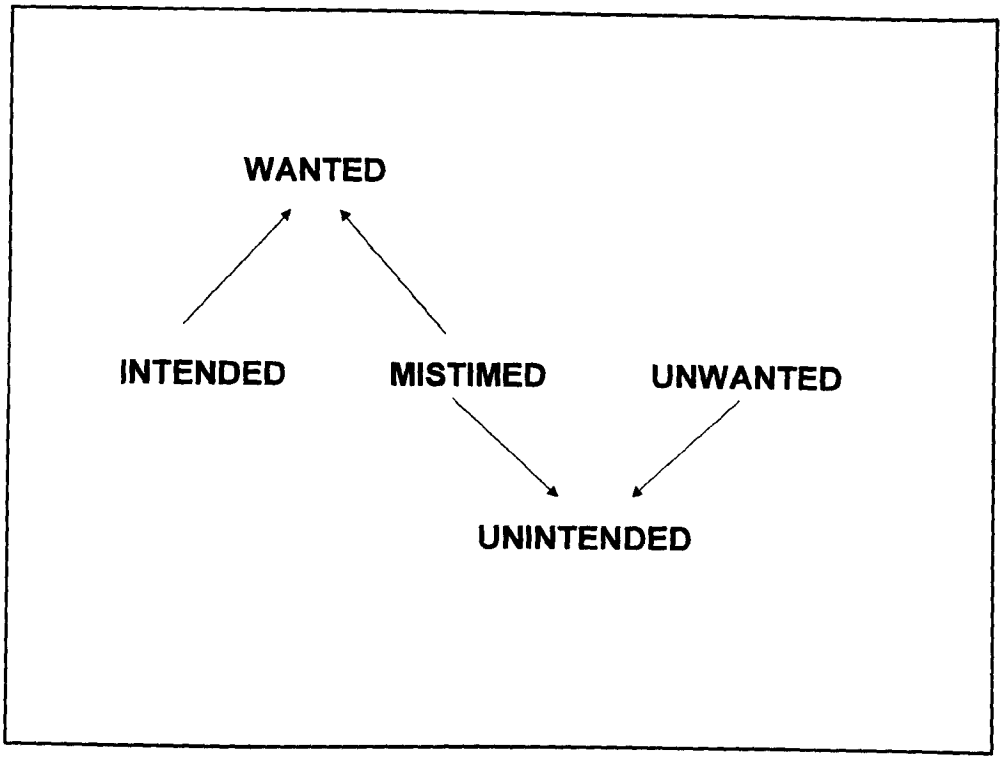
Mistimed and unwanted pregnancies are also classified as unintended pregnancies (Williams, 1991; Brown and Eisenberg, 1995; Kaufman et al, 1997) as shown in figure 2.1. On this classification, the proportion of live births which resulted from an unintended pregnancy was 38% in 1973, 32% in 1982, 35% in 1988, and 31% in 1995 (Williams, 1991; Henshaw, 1998)

Despite the well-established nature of the NSFG, some limitations of the questions assessing pregnancy status have been highlighted. There was concern at the National Center for Health Statistics (NCHS) when it was found that a large proportion of recent births to teens were reported as unwanted (22% of births women aged 15-19 in the five years before the 1988 interview date) (London et al, 1995). The NCHS suspected that this finding was the result of misinterpretation or misunderstanding of the questions on wantedness. Consequently, a follow up clarifying question was added to the existing wantedness questions in the 1995 survey (table 2.6). When the follow up question was tested by the NCHS Questionnaire Design Research Laboratory, it became apparent that some women reported a pregnancy as unwanted on the standard NSFG questions, only to change their

Table 2.6: National Survey of Family Growth

Survey	Years	Questions
National Survey of Family Growth	Cycle I-1973; Cycle II-1976; Cycle III-1982; Cycle IV-1988; Cycle V-1995. Cycle VI - expected 2001 Included: women of ages 15-44: Ever-married women for cycles I and II, all women after that. Women were asked about births up to five years before survey (interviews)	1) Was the reason you (were not/had stopped) using any method of contraception because you, yourself, wanted to become pregnant? (yes/no) *(If yes, go to qu.4; If no, go to qu.2)* 2) At the time you became pregnant, did you, yourself actually want to have a(nother) baby at some time? (yes/no/ don't know) *(If yes, got to qu.4; if no, go to qu.5; if don't know go to qu.3)* 3) It is sometimes difficult to recall these things but, just before that pregnancy began, would you say you probably wanted a(nother) baby at *some* time or probably not? *(If probably yes, go to qu.4; if probably no or didn't care, go to qu.5)* 4) Did you become pregnant sooner than you wanted, later than you wanted, or at about the right time? (Sooner/ later/right time/didn't care) 5) And what about your partner at the time you became pregnant ..., did he want you to have a(nother) baby at *some* time? Yes/no/don't know *(If yes, go to qu.6)* 6) Did you become pregnant sooner than he wanted, later than he wanted, or at about the right time? (Sooner/later/ right time/didn't care) **Additional questions used in 1995 survey:** 7) (*For unwanted pregnancies*) So when you became pregnant, you thought you did not want to have any children *at any time in your life*, is that correct? 8) (*For mistimed pregnancies*) How much sooner than you wanted did you become pregnant? (Answers recorded in months or years)

Figure 2.1: The U.S. NSFG categories of intention



answers on the supplementary question to say they had become pregnant sooner than they had wanted (i.e. the pregnancy was mistimed, not unwanted). London et al found that the most likely circumstances for women to mistakenly answer that they "did not want to have a(nother) baby at some time" were when "the pregnancy occurred much earlier than desired, possibly by many years", and when "they had no desire to have a baby with that particular partner, even though they wanted to have a baby at some time" (London et al, 1995, p.288).

Kaufman et al (1997) also identified some problems with the NSFG questions on pregnancy status when they compared the NSFG pregnancy status questions with a stand-alone intendedness question adapted from the Demographic and Health Survey (a questionnaire currently used in developing countries) in the 1993 Arizona Women's Health Survey (a reproductive health survey of a probability sample of Arizona women of reproductive age). Kaufman et al wanted to see if questions on wantedness and intendedness were affected by question wording and order. To discover this, they used a randomised cross-over design (i.e. half the respondents were asked the NSFG question first, and half were asked the DHS question first). The results were interesting. Kaufman et al found that "the marginal percentages of pregnancies classified as intended, mistimed, and unwanted did not differ significantly for the NSFG and DHS questions" (1997, p.813). However, at the level of the individual, they found that 75% of responses were concordant and 25% of responses were discordant. When results were discordant, "it was most often because pregnancies that were reported as mistimed on one question were reported as unwanted or intended on the other" (1997, p.813). Discordant responses were significantly greater for younger women, unmarried women, and women with lower educational levels. Kaufman et al then looked specifically at never-married women aged 18-24, and found that the order in which the NSFG and DHS questions were asked did not affect responses, "but asking intendedness questions twice did: the percentage of pregnancies classified as mistimed was greater in response to whichever intendedness question was presented later" (1997, p.814). Kaufman et al suggested that it was not the question wording which was affecting the result, but "increased familiarity with the underlying concepts of wantedness and timing" (1997, p.815).

Kaufman et al's (1997) findings led them to question the validity of the questions used in the NSFG and DHS. Like Westoff and Ryder (1977) and London et al (1995), Kaufman et al considered that some of problems with the wantedness questions arise because women (and in particular, young women) do not always know if they want a(nother) child. They suggest two approaches for dealing with this:

> "Many ... women might be unable to determine whether an unintended pregnancy is mistimed or unwanted, and one approach is simply not to ask them to do so. ... Another approach to improving validity of results is allowing 'do not know' to be a legitimate response category for women who have not yet decided their reproductive preferences" (Kaufman et al, 1997, p.815).

An interesting side note to the question of 'wantedness' can be found in Sable et al's (1997) paper which reports findings from the Missouri Maternal and Infant Health Survey, a population study of low birth weight babies. The survey used the NSFG categories of pregnancy status (i.e. intended, mistimed, unwanted) but also used additional measures of wantedness (see appendix 1) because they believe that the 'unwanted' category was insufficient:

> "Certainly, women who wanted to conceive 'sooner' or 'at that time' can safely be described as wanting to be pregnant, but does pregnancy timing really mean the same thing as wantedness? Many women have a mistimed pregnancy, but those who choose to carry it to term may not only have resigned themselves to the pregnancy but may have come to view it positively (Sable et al, 1997, p.81).

Interestingly, Sable et al's complaint about the NSFG 'wantedness' category would be considered a misinterpretation of it by the NSFG; the 'unwanted' category is not meant to apply to any resulting child, only to feelings prior to the pregnancy. However, if academics working in this field can misinterpret the category, it must raise a question about how it is interpreted by women answering in an interview situation.

Kaufman et al (1997) also considered that ambivalence may affect women's responses to the NSFG questions:

> "Although NSFG and DHS survey questions seem to presume that a woman's feelings about conception are straightforward, in reality a woman could have conflicting feelings about any pregnancy. Part of the instability in intendedness responses may be due to respondents focussing on different aspects of their feelings at the different times they are asked. Allowing respondents to report ambivalence may provide more accurate and useful results (Kaufman et al, 1997, p.815).

The organisers of the NSFG had already become interested in the problem of ambivalence, considering its potential association with ineffective contraceptive practices, and consequently two new questions were added to the 1995 NSFG survey (table 2.7) (London et al, 1995; Piccinino and Peterson, 1999). One question, directed only to women aged 15 to 24, presented ten separate statements (in reality five pairs in scrambled order) about feelings towards pregnancy. These statements were drawn from an 80+-item psychometric scale developed by Irene Rich to measure general pregnancy attitudes, ambivalence and symptoms of psychological distress during pregnancy (Rich, 1993, unpublished PhD thesis, cited in Piccinino and Peterson, 1999). In the NSFG, agreement or disagreement with these statements (on a ten-point scale) was used to assess the degree of ambivalence felt by young women about getting pregnant. Piccinino and Peterson (1999) reported that responses to three of the five pairs showed an association with the intended-mistimed-unwanted categories.

The second question used in the NSFG to assess attitudes to pregnancy asked women of all ages how they felt when they found out they were pregnant, with answers on ten-point scale between very happy and very unhappy. This question also showed an association with the intended-mistimed-unwanted categories. In women aged 15-24 the mean 'happiness' scores for each category were: intended - 9.1, mistimed - 4.9, and unwanted - 2.7 (Piccinino and Peterson, 1999, p.237). Confidence in the 'happiness' scale seems to be high, with Peterson and Mosher stating that "the 'happiness scale' ... essentially turns the intended-mistimed-unwanted categories into a continuous variable" (1999, p.253). Analysis by Trussell et al (1999) of NSFG data shows that this confidence is probably misplaced, particularly at the level of the individual. Condensing the 'happiness' scale into five categories (i.e. 1, very unhappy; 2-4, unhappy; 5, neutral; 6-9, happy; 10, very happy), Trussell et al show, in a manner very reminiscent of Ann Cartwright, the inconsistencies between intentions,

Table 2.7: National Survey of Family Growth 1995: additional questions

Women answering	Questions
Women of all ages	Which number on the card best describes how you felt when you found out you were pregnant? (*Shown card with 10-point scale, 1=very unhappy, 10=very happy*)
Women under age 25	Which number on the card best describes your opinion about becoming pregnant? (*Shown card with 10-point scale, 1=strongly disagree, 10=strongly agree, for each of the following statements:*) You were worried that you did not know enough about how to take care of a baby; You thought that a new baby would keep you from doing the things that you were used to doing like working, going to school, going out and so on; You looked forward to teaching and caring for a new baby; You looked forward to the new experiences that having a baby would bring; You looked forward to experiencing the changes in your body that come with carrying a baby; You looked forward to telling your friends that you were pregnant; You were worried about what being pregnant would do to your body; You were worried that you did not have enough money to take care of a baby; You dreaded telling your friends that you were pregnant; You looked forward to buying things for a new baby.

feelings about pregnancy and contraceptive use:

> "Women with contraceptive failures classified as intended pregnancies almost never reported being unhappy or very unhappy with that pregnancy, and 90% said they were happy or very happy. These results are consistent with one another, but it is still not clear why these women were practicing contraception. On the other hand, although a majority (59%) of women with contraceptive failures classified as unintended pregnancies reported being unhappy or very unhappy, 25% said they were happy or very happy" (Trussell et al, 1999, p.247).

Trussell et al concluded that "further work is needed to understand alternate conceptualizations and measurement strategies for pregnancy intention" (1999, p.247) [1]. Other recent U.S. commentaries and articles show the growing awareness of the problems with the NSFG pregnancy status questions, with particular criticisms of the reliance on family size estimation in a changed society (Luker, 1999; Zabin, 1999; Zabin et al, 2000) and the over-simplification of the complex concept of 'intention' (Bachrach and Newcomer, 1999; Sable, 1999).

Apart from the National Survey of Family Growth, and its precursors, other national U.S. surveys have also measured pregnancy status. In the 1970s, the Surveys of Young Women included a basic question on pregnancy status (table 2.8). The National Longitudinal Survey of Youth started in 1979, began collecting data on pregnancy status in 1982, and is still reporting (table 2.8) (Baydar, 1995; Joyce et al, 2000; Reardon and Cougle, 2002). The National Maternal and Infant Health Survey, which began life as the National Natality Survey, is a large scale survey and still reporting (table 2.9) (Kost and Forrest, 1995; Kost et al, 1998). The most recent survey to begin is the Pregnancy Risk Assessment Monitoring System (PRAMS) (table 2.9) (Adams et al, 1991; Dietz et al, 1999). PRAMS was initiated by the Division of Reproductive Health at the Centers for Disease Control and Prevention to provide state-specific population-based surveillance of unintended pregnancy and other related pregnancy, birth, and postnatal outcomes (e.g. Gazmararian et al, 1995; Dye et al, 1997; Dietz et al, 1999). Currently, 16 States use PRAMS. Interestingly, despite their varying questions to assess pregnancy status, most of the above surveys have published

---

[1] Our letter of response is shown in appendix 2.

Table 2.8: Surveys of Young Women and National Longitudinal Survey of Youth

Survey	Survey Information	Questions
Surveys of Young Women	Years of survey: 1971, 1976, 1979 Included: national random sample of 15-19 year old women in households Women were asked about their birth history, regardless of length of time since delivery(ies)	1) Did you want to become pregnant the (first, second, third, fourth) time?
National Longitudinal Survey of Youth	Cohort interviewed every second year Cohort aged 14-21 in 1979 Pregnancy question included since 1982, and refers to any current pregnancies or deliveries since last interview not previously reported	1) Before you became pregnant last time, did you want to become pregnant when you did? 1) Yes 2) If no, did you want a(nother) baby but not at that time or did you want none at all? a) didn't matter; b)no, not at that time; c) no, not at all; d) don't know

Table 2.9: The National Natality Survey, the National Maternal and Infant Health Survey, and the Pregnancy Risk Assessment Monitoring System

Survey	Year(s) of Survey	Questions
National Natality Survey	Years of survey: 1968, 1969, 1972, 1980 (changed to National Maternal and Infant Child Health Survey in 1988) Included: random sample of all women with a legitimate and live birth in year of survey Women are asked about their deliveries within the preceding 12 months (questionnaire)	Questions in 1968 and 1969: 1) Just before you became pregnant with your new baby, did you want to become pregnant at that time? a) yes b) no, wanted a baby, but did not want to become pregnant yet. c) No, did not want a baby Questions after 1972: 1) Thinking back, just before you became pregnant with your new baby, did you want to become pregnant at that time? a) I wanted this pregnancy at an earlier time as well as at that time. b) I wanted to become pregnant at that time. c) I did not want to become pregnant at that time but wanted another child sometime in the future. d) I did not want to become pregnant at that time or at any time in the future.
National Maternal and Infant Health Survey	Years of survey 1988, 1996 Included: Random sample of women aged 15-49 with a live birth, stillbirth, or an infant death in survey year Women were asked about their deliveries in survey year (most women respond within two years) (questionnaire)	1) Thinking back, just before you became pregnant, did you want to become pregnant at that time? a) I wanted this pregnant at an earlier time, as well as at that time. b) I wanted to become pregnant at that time. c) I did not want to become pregnant at that time, but I wanted another child sometime in the future. d) I did not want to become pregnant at that time or any time in the future.
Pregnancy Risk Assessment Monitoring System (PRAMS)	Since 1987 in 16 States Sample of women are selected each month from birth certificates Women asked about survey baby, 3-6 months after delivery (questionnaire)	1)Thinking back to just before you were pregnant, how did you feel about becoming pregnant? a) I wanted to be pregnant sooner b) I wanted to be pregnant then c) I did not want to become pregnant at that time, but I wanted another child sometime in the future. d) I did not want to become pregnant at that time or any time in the future.

their findings in terms of the NSFG categories (i.e. intended, mistimed, and unwanted) (e.g. Baydar, 1995; Kost and Forrest, 1995; Kost et al, 1998; Dietz et al, 1999; Joyce et al, 2000).

It is also important to note that a recent analysis of data from the National Longitudinal Survey of Youth has, like Everett (1991), shown an effect of the time at which women answer questions about pregnancy status (i.e. the difference between answering during pregnancy or after birth). Using the longitudinal data of a subset of 240 women who answered the pregnancy intentions questions in the 1990 wave of the survey (when they were pregnant) and who answered the same questions again (in retrospect for the same pregnancy) in the1992 wave, Joyce et al (2002) discovered that women were more likely to report that the pregnancy was intended if asked at the later date (i.e. after the birth):

> "Whereas 10.1% of the births that are reported to be intended when intentions questions were asked during pregnancy were reported after birth to be unintended, 29.2% of the births reported to be unintended when intentions questions were asked during pregnancy were reported retrospectively to be intended. In other words, mothers are three times as likely to switch pregnancy intention from unintended to intended than from intended to unintended" (Joyce et al, 2002, p.207).

However, according to the full cross-sectional data from each of the waves and the subset data, there was little difference in each of the waves between the proportions of pregnancies reported prospectively as unintended and the proportion of pregnancies reported retrospectively as unintended. Further analysis revealed that there were two reasons for this. Firstly, "a large fraction of women switched from the smaller category (unintended), and a small fraction - but roughly equal number - switched from the larger category (intended)" (Joyce et al 2002, p.207), thus contributing to the apparent consistency in the cross-sectional data. Secondly, there was a bias in reporting of pregnancy at the time of the interview by currently pregnant women. Women who had intended to become pregnancy were more likely to recognise their pregnancies and were therefore more likely to report being pregnant at the time of the interview. Consequently, women with unintended pregnancies were under-represented in the "currently pregnant" group. However, despite these problems Joyce et al (2002) concluded (on the basis of further analysis) that once selective pregnancy recognition was corrected for there was no evidence that retrospective

assessment of pregnancy intention produces misleading estimates of either the number of the consequences of unintended births. Interestingly, they never question the validity of the questions themselves.

As in Britain, unintended/unplanned pregnancies are a concern of the U.S. government. In 1991, the U.S. Department of Health and Human Services, through its National Health Promotion and Disease Prevention Objectives, set a target to reduce unintended pregnancies to 30% of all pregnancies by the year 2000 (cited in Brown and Eisenberg, 1995; Petersen and Moos, 1997). In 1995, the Institute of Medicine convened an expert panel that reviewed and summarised current knowledge of unintended pregnancy and its causes, reviewed existing programmes to reduce unintended pregnancy, and made recommendations about how unintended pregnancy could be reduced in the future (Brown and Eisenberg, 1995). Five goals were stressed in the campaign to reduce unintended pregnancy (Brown and Eisenberg, 1995, p.4):

1) improve knowledge about contraception, unintended pregnancy, and reproductive health;
2) increase access to contraception;
3) explicitly address the major roles that feelings, attitudes, and motivation play in using contraception and avoiding unintended pregnancy;
4) develop and scrupulously evaluate a variety of local programs to reduce unintended pregnancy; and
5) stimulate research to a) develop new contraceptive methods for both women and men, b) answer important questions about how best to organise contraceptive services, and c) understand more fully the determinants and antecedents of unintended pregnancy.

The goals show the IOM's understanding of the complexity of the issues surrounding understanding and prevention of unintended pregnancy. As part of goal five, they made

particular recommendations for research:

> "... there is a pressing need for more interdisciplinary research to understand the complex relationships among the cultural, economic, social, biological, and psychological factors that lie behind widely varying patterns of contraceptive use and therefore unintended pregnancy. .... Careful work is needed to integrate these ideas with the more traditional explanations of unintended pregnancy, such as inaccessible contraceptive services or insufficient knowledge about how to prevent pregnancy. Research is also needed on factors outside of individuals (such as the impact of media messages on the contraceptive behavior of individuals), on factors within couples (such as the relative power and influence of women and men in decisions to use or not use particular methods of contraception), and on the combination of individual, couple, and environmental factors considered together" (Brown and Eisenberg, 1995, p.10).

Other bodies, such as the Alan Guttmacher Institute and Association of Reproductive Health Professionals, are involved in initiatives to understand and reduce unintended pregnancy (Petersen and Moos, 1997; Alan Guttmacher Institute, 1999, 2000). Unintended pregnancy has also been the subject of a number of editorials and review articles (Grimes, 1986; Westoff, 1988; Forrest, 1994; Lee and Stewart, 1995; Cates, 1996), and there is high public awareness of the 'problem' (Delbanco et al, 1997; Mauldon and Delbanco, 1997).

To summarise, in the U.S. over the last 50 years, various attempts have been made to assess pregnancy status on a national basis. As in Britain, the first pregnancy status questions arose as parts of large quantitative surveys which were interested in family building patterns and contraceptive use (e.g. Growth of American Families studies, National Fertility Surveys, the National Survey of Family Growth). Also, similar to those in Britain, the U.S. surveys show no evidence of qualitative or other empirical work being carried out on pregnancy status prior to the development of the questions. However, in contrast to Britain, the U.S. surveys emphasise the terms mistimed and unwanted (which are then combined to form a category of unintended or unplanned). Originally in Britain, Cartwright (1970) used the terms mistimed and unwanted but then moved towards using the terms 'intended' and 'unintended' instead, as her pregnancy status questions were amended (Cartwright, 1976, 1988). In the U.S., these concepts were used in the first surveys and have remained ever since. The National Survey of Family Growth, currently the most influential U.S. survey

with regard to pregnancy status, is a particularly strong advocate of the use of the terms 'mistimed' and 'unwanted', and it is noticeable that other U.S. surveys conform to these concepts.

Interestingly, problems with the concepts of 'mistimed' and 'unwanted' were raised as early as the 1970s by Westoff and Ryder (1977) when they questioned whether it was possible or realistic to expect all women to know their reproductive preferences. Given that they raised such concerns on a survey of married women (i.e. women who were with a current partner, in a legally recognised relationship, with whom they would normally be expected to have children), it is highly likely that problems have been exacerbated since by changes in the patterns of marriage, childbearing, and sexual activity (i.e. women are likely to have several sexual partners before marriage and/or childbearing). In the 1990s, Westoff and Ryder's concerns were raised again (London et al, 1995; Kaufman et al, 1997; Luker, 1999; Zabin, 1999; Zabin et al, 2000). Kaufman et al (1997) also found that increasing familiarity with the concepts of mistimed and unwanted influenced women to report different answers. This suggests that these concepts are imposed and not ones which women would normally use themselves.

As in Britain, measurement of pregnancy status in the U.S. has usually taken place after a birth or, on occasions, during a continuing pregnancy (e.g. as in the Growth of American Families surveys, National Fertility Surveys, and National Longitudinal Survey of Youth). Hence, the general assumption has been that all abortions are due to unintended pregnancies and, as in Britain, has led to estimates of unintended pregnancy being derived from the combination of data on abortion with data on continuing unintended pregnancies (Dryfoos, 1982; Henshaw, 1998). (Women are asked about abortions in the NSFG, but the pregnancy status questions do not apply. There is also an acknowledged problem with under-reporting of abortion in the NSFG, which is currently being addressed (Mosher and Bachrach, 1996; Fu et al, 1999).) Also, it has recently been noted that asking women questions about pregnancy status while pregnant may produce different answers to asking them after birth (Joyce et al, 2002).

In 1997, a review of U.S. surveys by Petersen and Moos was published, entitled "Defining and Measuring Unintended Pregnancy: issues and concerns". It is a useful review, although there are a number of inaccuracies in the research (e.g. omission of the Growth of American Families studies; inaccurate inclusion criteria and question wording for the National Fertility Surveys; incomplete question wording for the National Survey of Family Growth; inaccurate statements that all surveys only assess pregnancy status after a birth). Petersen and Moos make sensible points about the difficulties of comparing and contrasting rates of unintended pregnancy across various national surveys because of the different inclusion criteria and different questions used to assess pregnancy status (1997, p.234). Also, they point out that current questions elicit limited information and do not always reflect the complexity of feelings about a pregnancy (Petersen and Moos, 1997, p.237). They conclude:

> "In the future, to accurately measure unintendedness of pregnancy, we must use a consistent definition that takes into account the complexities of the issue. Valid and reliable scales that reflect the value of unintendedness from the mothers' perspective need to be developed to reflect the potential change in intendedness over time" (Petersen and Moos, 1997, p.239).

International attempts at measurement of pregnancy status

There are/have been two major international programmes of fertility research in the last thirty years: the World Fertility Survey and the Demographic and Health Surveys. Both have included a measure of pregnancy status.

The World Fertility Survey (WFS) ran from 1973 to 1984 and included 43 developing countries and 21 developed countries (Cleland and Scott, 1987; United Nations, 1987). The programme was funded by the United Nations Fund for Population Activities and the United States Agency for International Development, with a contribution from the United Kingdom Overseas Development Administration, and was co-ordinated by the International Statistical Institute in London (Cleland and Scott, 1987). The surveys were carried out by national staff in each country, and between 2500 and 10000 women aged 15-49 were

interviewed in nationally representative samples. Developed countries funded their own national surveys, which were less standardised and largely independent of the WFS headquarters (Cleland and Scott, 1987). Dunnell's (1979) *Family Formation* study was Britain's contribution to the WFS. Developing countries used the WFS-developed questionnaire; these questionnaires were largely, although not fully, standardised in each country.

The WFS questionnaire was designed for administration to ever-married women and included questions in the following areas: 1) respondent's background; 2) maternity history; 3) contraceptive knowledge and use; 4) marriage history; 5) fertility regulation; 6) work history; 7) current (last) husband's background (Cleland et al, 1987). The final questionnaire also included a "Fertility Regulation Module" (FRM) which was recommended for use in place of the section five questions on fertility regulation. The FRM included more questions and was used by most developing countries. Cleland et al explains how the FRM came about:

> "This arrangement was the outcome of a prolonged and divisive debate about the usefulness of collecting data on the subject of reproductive motivations in large-scale, Third World surveys. Most experts conceded the need to include questions on desire for more children and on the total desired number of children. But opinion was deeply divided over such topics as the desired timing of the next birth, wives' reports on their husbands' attitudes and, above all, on the status of the last pregnancy (i.e. whether it had been planned or was the result of contraceptive failure and whether it had been wanted at all)" (Cleland et al, 1987, p.33).

Cleland et al report that section five did not include any of the disputed items but that they were all contained in the FRM.

The first drafts of the WFS questionnaire were prepared by Ryder and Westoff of Princeton University (who had carried out the U.S. National Fertility Surveys) (Cleland et al, 1987) and the similarity with the U.S. questions on pregnancy status is apparent. In the FRM, women were asked: 1) whether the pregnancy resulting in the last birth (or current pregnancy) had been wanted; 2) whether the woman had become pregnant while using a

contraceptive method (restricted to women who had earlier affirmed that the pregnancy had been wanted); and 3) if the woman had stopped using contraception prior to getting pregnant (or had stopped using contraception now and was not pregnant) (asked only of women who had earlier affirmed the pregnancy had been wanted or currently wanted to get pregnant) (Cleland et al, 1987, pp.57-58). Cleland et al described the restriction of questions 2 and 3 to wanted pregnancies as "a most unfortunate error". They explained:

> "It arose in part because of the conceptual orientation of the module, i.e. the desire to distinguish between 'number' failure and 'timing' failure in the implementation of fertility preferences. The original phrasing of the question on reason for stopping was 'did you stop because you wanted to become pregnant?', which obviously could not be asked of women who had earlier testified that the pregnancy was unwanted. This is an illustration of the danger of designing a questionnaire around a pre-conceived and narrow analytic framework. With the change of this question to an open-ended format 'why did you stop using that method?' in the 1977 modifications to the questionnaire, it would have been possible to redesign the questioning sequence ... for all contraceptors. Regrettably, this was not done, though such a redesign did find its way into a few country questionnaires (Cleland et al, 1987, p.58).

Interestingly, the "pre-conceived and narrow analytical framework" described above by Cleland et al is precisely the framework used by past and current U.S. surveys with their categories of 'mistimed' and 'unwanted'. The WFS also foreshadowed one of the additions made to the pregnancy status questions in the 1995 National Survey of Family Growth (table 2.5). Cleland et al reported that in later WFS surveys, women who indicated that they wanted no (more) children were asked the additional question, "Do you mean not for the time being, or not at all?" (1987, p.36). This additional question was intended to obtain a better measurement of the concept, as is the question "So when you became pregnant, you thought you did not want to have any children *at any time in your life*, is that correct?" in the NSFG.

As discussed earlier (see section on U.S. surveys), a woman can only define a pregnancy as unwanted if she knows her lifetime reproductive preferences and does not subsequently change them. Lightbourne looked at the reliability of fertility preferences in the WFS and found that "the evidence on test-retest reliability of the total number of children desired

item basically confirms what we already knew, namely that a large proportion of women definitely do not have fixed desired family sizes" (1987, p.841). Therefore, unsurprisingly, Cleland et al also noted "worrying inconsistencies ... between reported wantedness of last pregnancy and the contrast between desired and actual family size" (1987, p.58). Lightbourne suggests that the evidence from the WFS shows that fertility preferences is a dynamic concept, and that women tend to shift their desired family size upwards when they have additional births. He believes that this "is not simply a rationalisation of undesired births, but is also the result of a tendency on the part of low-parity women to understate the number of children they will ultimately want" (Lightbourne, 1987, p.841).

In their overall assessment of the WFS methodology, Cleland et al (1987) concluded that greater investment in the development of the questions was needed:

> "WFS itself did little more than pre-testing and its only truly pioneering effort was the FOTCAF (Factors other than contraception affecting fertility) module. We believe that major improvements to the substantive yield of national fertility surveys will only come from intensive work to refine the measurement of often elusive concepts" (Cleland et al, 1987, p.65).

The Demographic and Health Surveys (DHS) began in 1984, funded by the U.S. Agency for International Development, and administered by Macro International Inc. in Columbia, Maryland. There have been three rounds of the DHS, the first beginning in 1984 and the most recent in 1995, and over 40 developing countries have been included (Westoff, 1991; Macro International, 1994). The main objectives of the DHS programme are: 1) to promote widespread dissemination and utilization of DHS data among policy makers, 2) to expand the international population and health database, 3) to advance survey methodology, and 4) to develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys (Westoff, 1991). The DHS programme has been successful in increasing the amount of data available on fertility in developing countries (e.g. Westoff, 1991; Macro International, 1994; Klitsch and Singh, 1996; Alan Guttmacher Institute, 1999) and data files are available to researchers around the world for further analysis.

In terms of the topics and types of question included in the DHS, there is little change from the World Fertility Survey. The DHS questionnaire includes questions in the following areas: 1) household; 2) reproduction; 3) contraception; 4) pregnancy and breastfeeding; 5) children's immunisation and health; 6) marriage; 7) fertility preferences; and 8) husband's background. The DHS questions measuring pregnancy status (table 2.10) are found in the sections on reproduction (question to pregnant women only) and pregnancy and breastfeeding (question for each birth in last three years). The pregnancy status questions continue to use the concepts of "mistimed" and "unwanted", as preferred by the American surveys (Macro International, 1995a, 1995b; Adetunji, 1998). This is perhaps not surprising given that the DHS is a U.S.-organised survey and that Charles Westoff (who originally used the terms in the U.S. Fertility Surveys and was an advisor in the WFS) is a senior DHS consultant and has been involved in the development of each round of DHS questionnaires.

Table 2.10: Demographic and Health Surveys

Survey	Survey Information	Questions
Demographic and Health Surveys	Years of surveys: DHSI: 1984-89 DHSII: 1988-94 DHSIII: 1995 onwards Surveys took place in over 40 developing countries. Included: women aged 15-49. Most countries included all women (regardless of marital status) or ever married women. Restricted to currently married women in a few countries.	*For women currently pregnant:* At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all? *For all births (live or dead) in last three years:* At the time you became pregnant with (name), did you want to become pregnant then, did you want to wait until later, or did you want not (more) children at all? Then=intended; Later=mistimed; not want any (more) children=unwanted.

As the DHS pregnancy status questions rely on the concepts of "mistimed" and "unwanted", observations about the methodological limitations of these questions have been similar to those made about the National Survey of Family Growth, the National Longitudinal Survey of Youth and the World Fertility Survey's questions. Two recent

studies (one for which Charles Westoff was an investigator) have provided the basis for these observations (Bankole and Westoff, 1998; Williams et al, 2001). Bankole and Westoff's (1998) study included 3324 Moroccan women interviewed at two time points: 1992 and 1995. Like Joyce et al (2002), Bankole and Westoff found an effect of the length of time since pregnancy on women's responses. They found that the aggregate proportion of women reporting that their pregnancies were intended was 10% higher at the second time point. They also discovered that at the individual level the findings were even less consistent:

> "The evidence at the individual level indicates that the problem is even more serious than suggested by the aggregate level statistics. .... the problem is not unidirectional: some children who were previously reported as wanted also were re-classified as unwanted. The error did not cancel out, however, because the bias tends to be much more towards a shift from unwanted to wanted births" (Bankole and Westoff, 1998, pp.451-2).

Bankole and Westoff concluded from these data that "a serious amount of measurement error" was associated with the pregnancy status questions, and recommended "a need for caution in using the information either as an end in itself or as an ingredient in achieving some other ends such as the calculation of unwanted fertility rates" (1998, p.452). In the second study, Williams et al (2001) used depth interviews with a small sample of Filipino women and men to assess whether the DHS pregnancy status questions captured respondents' attitudes towards their pregnancies. They found that about at third of respondents were inconsistent in their responses, and that much of the reason for this inconsistency was the difficulty in translating individual's attitudes into the concepts of "mistimed" and "unwanted", particularly as the pregnancy status questions do not allow ambivalence about pregnancy intention and/or family size preference to be expressed. Williams et al argued that consistency would be improved if the pregnancy status survey questions had general category of "unintended" instead of the concepts of "mistimed" and "unwanted".

Finding out if (and how) pregnancy status is measured in other developed countries is surprisingly difficult. Jones et al (1988) carried out a review of unplanned pregnancies and family planning services in developed countries for the Alan Guttmacher Institute. Of the

20 countries studied, they identified ten (Belgium, Canada, Denmark, Finland, France, Netherlands, Spain, Sweden, Great Britain, and the United States) as having national figures on unplanned pregnancies. These figures were from surveys carried out in the late 1970s or early 1980s. (For Britain, Dunnell's (1979) Family Formation study was used, and for the U.S. it was the 1982 round of the National Survey of Family Growth.) Jones et al commented that in all countries, apart from the Netherlands and Great Britain, it was possible to distinguish which unplanned births were unwanted ever (1988, p.54). They also said that "the questions used to determine planning status varied substantially ... from survey to survey" but that it was "not clear how these differences might have affected the results" (Jones et al, 1988, p.54).

A recent publication by the Alan Guttmacher Institute (1999), *Sharing Responsibility*, included figures for unplanned pregnancy for France and Japan (along with the U.S. and the DHS results for developing countries). The results for France came from their 1994 Survey on Families and Employment which included women aged 20-49, and the results from Japan came from their 1992 National Fertility Survey which included couples in their first marriage. Both the French and Japanese figures for unplanned pregnancy were broken down into "mistimed" and "unwanted".

There have been international attempts at estimating rates of infertility and subfecundity, one measure of which is "time to pregnancy". The European Infertility and Subfecundity Study was carried out with random population samples between 1991 and 1993 in five countries: Denmark, Germany, Poland, Italy and Spain. As part of the process of obtaining information about time to pregnancy, women were asked whether their pregnancies were planned (Basso et al, 1995, 2000; Juul et al, 2000). This survey seems to have produced very high rates of planned pregnancy, leading one paper citing the study data to state: "most pregnancies are now planned in many industrialized countries" (Olsen and Andersen, 1999, p.419). More recently, the Human Reproduction Programme of the World Health Organization developed a protocol for multi-centre studies of fertility which included a questionnaire for pregnant women to obtain time to pregnancy (Stewart et al, 2001). This questionnaire does not ask women to categorise their pregnancies as planned or unplanned,

rather asks questions about type of contraceptive use, whether a method was used consistently, and whether a method was stopped in order for the woman to become pregnant.

In summary, the two international attempts at measurement of pregnancy status and the (limited) evidence from other developed countries demonstrate an adherence to the U.S. concepts of "mistimed" and "unwanted". Yet, there is evidence from both the World Fertility Survey and the Demographic and Health Surveys of problems with these concepts. Once again, the evidence suggests that not all women/couples fit the model of clear reproductive preferences and fully congruent contraceptive behaviour.

Assessment of pregnancy status: sub-national studies in developed countries

As well as national surveys, questions to elicit pregnancy status have been included in sub-national quantitative studies. This section outlines the attempts made by specific studies to measure pregnancy status.

I identified 16 recently published sub-national British studies which have included an assessment of pregnancy status (Ineichen, 1986; Lester and Farrow, 1988; Metson, 1988; While, 1990; Everett, 1991; Lo et al, 1994; Smith and McElnay, 1994; Gilchrist et al, 1995; Woodward, 1995; Bodard and Baldwin, 1996; Lyons, 1996; Warner et al, 1996; McGovern et al, 1997; Allen and Bourke Dowling, 1998; Harris and Campbell, 1999; Sen et al, 2001) (see appendix 3). In most of the studies, little or nothing is said about how pregnancy status was assessed, implying that the concept is perceived as unproblematic. Two studies reported asking women whether they intended to become pregnant, yet assigned women to the categories of "planned" and "unplanned", suggesting that the authors see the terms "planning" and "intending" as interchangeable (Metson, 1988; Lester and Farrow, 1988). Three studies reported using more than the categories of "planned" and "unplanned": While (1990) added "welcomed" and "unwanted"; Lester and Farrow (1988) added "ambivalent"; and Ineichen (1986) added "ambivalent" and divided the "unplanned" category into

"unplanned-pleased" and "unplanned-upset". Harris and Campbell (1999) kept the dichotomous categories of "planned" and "unplanned", but reported using a supplementary question, "if you had been warned the night you got pregnant, that you would conceive, would you have gone ahead with making love?", to assign women to either 'planned' or 'unplanned' in cases where it was unclear.

The studies from the U.S and other developed countries show a similar pattern to those published in Britain (e.g. Cobliner et al, 1976; Rothstein, 1977; Campbell and Barnlund, 1977; Blignault and Brown, 1979; Steinlauf, 1979; Neal and Groat, 1980; Fergusson and Horwood, 1983; Jurich, 1984; Miller, 1986, 1994; Chow et al, 1987; Warren and Johnson, 1989; Laizner and Jeans, 1990; Najman et al, 1991; Webb and Holman, 1992; Cohan and Dunkel-Schetter, 1993; Clinton and Kelber, 1993; O'Campo et al, 1993; Roe and Drivas, 1993; Denton and Scott, 1994; Rosenfeld and Everett, 1996; Bitto et al, 1997; Davidson et al, 1997; Delgado-Rodriguez et al, 1997; Lane et al, 1997; Mayer, 1997; Sable et al, 1997; Williams et al, 1997; Hellerstedt et al, 1998; Curtis et al, 1999; McDonnell et al, 1999; Jensen et al, 1999, 2000; Leathers and Kelley, 2000; Orr et al, 2000; Kaharuza et al, 2001; Kero et al, 2001; O'Leary et al, 2001; Petersen et al, 2001) (see appendices 1 and 4). Most studies say very little about how pregnancy status was assessed and produce answers in the dichotomous categories of "planned" and "unplanned", again implying that measurement is perceived as uncomplicated. One time to pregnancy study seems to assume that there are only "planned pregnancies" and contraceptive failures" (Jensen et al, 1999, 2000). However, some studies used the NSFG questions or categories (Sable et al, 1997; Hellerstedt et al, 1998; Leathers and Kelley, 2000; Orr et al, 2000; Petersen et al, 2001) and one study used the responses to a set of statements to assign women to "planned" and "unplanned" (Jurich, 1984). A further two studies opted for extra categories: Rothstein (1977) allowed women the answers of 'yes', 'not completely', and 'not at all' in response to a question asking whether they had planned their pregnancies, and Denton and Scott divided their category of "unintended" into "unintended-wanted" and "unintended-unwanted". Laizner and Jeans (1990), and Sable et al (1997) also included extra categories of "wantedness" or "desire", and Najman et al (1991) used a set of statements to assign the categories of "wanted" or "unwanted" .

The method of eliciting pregnancy study by Roe and Drivas (1993) is interesting. They opted for a casual conversation with mothers to elicit whether a pregnancy was planned or unplanned. They took this approach after their pilot study when "the mothers had been asked directly whether the baby was wanted" (1993, p.122). Roe and Drivas found that "very few admitted that they had not wanted their babies" and suggested that the reason for this may have been that the mothers "found the direct question somewhat intimidating" (1993, p.122). In their paper, they do not consider why mothers may have disliked this question.

Overall, the attempts at measurement of pregnancy status by sub-national studies have been more simplistic than the national studies, suggesting that measurement of pregnancy status may be viewed as relatively uncomplicated. However, a minority of studies have shown an awareness of the potential complexities of measurement, either opting for extra response categories or more sophisticated means by which to assign women to categories.

The psychological/psychotherapeutic view

Although two of the studies in the above section, Miller (1994) and Harris and Campbell (1999), initially assigned the terms "planned" or "intended", both developed their analyses to produce more complex categorisations. Miller's "intendedness continuum" and Harris and Campbell's "categories of intentionality" are shown in table 2.11. Miller's continuum is a mix between intentions and contraceptive use, and is an extension of a previous five-point categorisation (Miller, 1974). Harris and Campbell's categories are a mixture of "planning", partner discussion/agreement, the woman's assessment of pregnancy risk, and reactions to pregnancy. In both studies women were assigned to categories by one or more researchers on the basis of information given across structured interviews. The range of positions allowed to women by these categorisations fits with the complexities apparent in the U.K. and U.S. national studies, i.e. women may have intentions and behaviour which are not congruent. Although, Miller and Harris and Campbell use terms such as "ambivalently intended"or "semi-planned", they interpret such incongruent behaviour as

Table 2.11: Psychological categories of pregnancy status

Miller, 1994

Study location: San Francisco Bay area
Participants: 967 women

Intendedness continuum:

1) Contraception is stopped or avoided and other proceptive behaviors are pursued with the conscious intention of conceiving.
2) Contraception is stopped or avoided and other proceptive behaviors are pursued with the conscious but ambivalent intention of conceiving.
3) Contraception is stopped or avoided and other proceptive behaviors are pursued but with either the respondent or her partner having much less intention of conceiving than the other.
4) Contraception is not used but there is no conscious intention of conceiving.
5) Contraception is used irregularly and there is no conscious intention of conceiving.
6) Contraception is used regularly and effectively except for one or, at most, several instances of sexual intercourse that occur as a result of situational factors and there is no conscious intention of conceiving.
7) Contraception is used regularly and effectively and conception appears to result from a method failure.

Miller considers category 1 to be "fully intended", categories 2 and 3 to be "ambivalently intended", categories 4, 5, and 6 to have "decreasing degrees of sub-intention", and categories 5, 6, and 7 to have "increasing degrees of counter-intention".

Harris and Campbell, 1999

Study location: London
Participants: 88 pregnant women (all continuing their pregnancies)

Categories of intentionality:

1) The baby was fully planned with the woman and partner agreeing that it was the correct time to have a baby.
2) The woman had been planning to get pregnant at this time but had not really discussed it with her partner.
3) The woman had planned to get pregnant at some point soon, but was not actually thinking she would become pregnant at that point.
4) The woman did not really mind if she became pregnant or not.
5) The woman was not planning to become pregnant at this time but did not get a shock when she found she was pregnant.
6) The woman got a shock when she found she was pregnant because she really was not planning to get pregnant right at this moment.

Harris and Campbell then combine above categories to form "planned" (categories 1 to 3), "semi-planned" (categories 4 and 5), and "true unplanned" (category 6).

unconscious or sub-conscious motivation to have a baby. For example, Miller states: "the concept of sub-intention implies that subconscious intent played some role in the woman's exposing herself to an increased risk of pregnancy" (1994, p.3).

The role of the unconscious or sub-conscious in intention or motivation has been a somewhat contested area in the field of psychology (Bornstein and Masling, 1998). Freud's view of the unconscious, central to psychotherapy, was that the unconscious was not simply a location where mental processes occurred outside awareness, but "a dynamic place - a repository for drives, instincts, wishes, and other mental contents so anxiety-laden and full of emotion that they were deliberately kept from awareness (i.e. repressed)" (Bornstein and Masling, 1998, p.xiii). Freud advocated three methods for uncovering the unconscious: the technical method of psychoanalysis, the interpretation of patients' dreams, and the "exploitation of their faulty and haphazard actions" (Freud, 1997, p.109). The last of these is of particular relevance to unplanned pregnancy:

> "...faulty actions and symptomatic or haphazard actions alike, are not so insignificant as people by a sort of conspiracy of silence, are ready to suppose. They always have a meaning, which can usually be interpreted with ease and certainty for the situation they occur. And it turns out that once again they give expression to impulses and intentions which have to be kept back and hidden from one's own consciousness, or that they are actually derived from the same repressed wishful impulses and complexes which we have already come to know as the creators of symptoms and the constructors of dreams (Freud, 1997, p.114)

The tautological extension of this statement (in relation to pregnancy) is that there is no such thing as an unintended pregnancy, because if a woman becomes pregnant she must have intended to, either consciously or unconsciously. Although an extreme and contestable statement (e.g. the situations of rape and contraceptive failure spring to mind), the Freudian idea of unconscious motivation is hard to refute conclusively because of the difficulties in empirically testing such a theory. The Harris and Campbell (1999) study is one attempt at such a test. They outline their rationale:

> "... hidden costs and benefits may provide a clue to the reasons why the pregnancy has happened at this point in a woman's life, rather than any other. ...The current study tests the hypothesis that women who have

> become pregnant without planning to do so will score significantly higher than other women on measures to test how far they might gain from becoming pregnant (Harris and Campbell, 1999, p.107).

Harris and Campbell did indeed find that women with unplanned pregnancies were rated as having higher secondary gain than women with planned pregnancies and women who were not pregnant (although inter-rater reliability was slightly low at 0.69). However, a major flaw of their study was that they only included women with continuing pregnancies; if women undergoing abortions had been included the results might have been different.

Although Harris and Campbell attempted to test empirically Freudian ideas about the unconscious, most experimental psychologists have steered clear of Freudian psychoanalytic ideas, instead concentrating on testing unconscious cognitive processes (Reingold and Merikle, 1993; Westen, 1998). From the field of cognitive psychology, there is now strong body of evidence to demonstrate that perception, learning, and memory can occur without conscious awareness (Bornstein and Masling, 1998; Westen, 1998). The thematic apperception test (TAT) is one technique which has been shown to be useful in psychological studies looking at unconscious motivation. As Westen describes:

> "For example, over the long run, assessment of motives from TAT stories predicts entrepreneurial or managerial success much better than do self-report measures of need for achievement or power, which tend to have little predictive validity. Tell people that they need to achieve on a particular task, however, and their self-reported achievement motivation will predict their effort and performance much better than motives assessed from TAT responses "(Westen, 1998, p.29).

Adler and Tschann (1993) have used the TAT technique to investigate, what they term, "pre-conscious" motivation towards pregnancy in adolescents. They asked 290 sexually active young women about their conscious motivation towards pregnancy, i.e. "the young women's views of the consequences of pregnancy, and whether the balance of favorable versus unfavorable aspects provides motivation to become pregnant or avoid pregnancy" (1993, p.149). To elicit "pre-conscious" motivation they asked the young women to complete a story about a young couple who are dating, where the girl finds out she is pregnant. Adler and Tschann expected the young women's completed stories to reflect the

their positive or negative associations with pregnancy. Interestingly, Adler and Tschann found that 33% of their sample displayed negative conscious and positive pre-conscious motivations. (Unfortunately, to date there are no published findings regarding fertility outcomes in each of these groups of young women.)

One of the problems with the psychological literature is the rather fluid use of the terms "unconscious", "subconscious", and "pre-conscious", and the lack of distinction between them. Also, it seems to be assumed that women cannot consciously hold conflicting motives or attitudes, but that one or more conflicting motives must be pushed to the un/sub/pre-conscious (e.g. Fischer, 1971; Adler and Tschann, 1993). Karen Luker, a sociologist, has offered an alternative conceptualisation of multiple motives in her study to explore why women take contraceptive risks (Luker, 1975).

Luker carried out depth interviews with 60 women undergoing abortion living on the West Coast of the U.S in the early 1970s. From the women's narratives, Luker developed a model of behaviour based on conscious decision-making. This model draws on rational choice theory, the basic principle of which is that individuals make choices in a way as to maximise their expected utility, i.e. maximise the benefit or minimise the cost to themselves. Evans explains: "specifically, the theory proposes that all decision acts are subject to outcomes, and that each outcome is associated with a utility for the decision maker" (1993, p.8). Luker applies this theory, arguing that "the costs and benefits of both contraception and pregnancy ... act independently to create a 'set' which makes risk-taking either more or less likely" and that "women are engaged in a constant assessment of the utilities of both contraception and pregnancy" (1975, p.81). She gives an example of this "tacit" process:

> "A woman may have a chronic disaffection with her contraceptive method (expressed here as 'low utilities of contraception') which is not of itself sufficient to create a favorable 'set' toward risk-taking. When something changes in her life so that pregnancy becomes more desirable (expressed here as a 'high utility of pregnancy'), the addition of this factor to the chronic disaffection can change the 'set' to a position favorable to risk-taking" (Luker, 1975, p.81).

It is notable in this example that the change in life, making the pregnancy more desirable, is interpreted as a conscious motivation (albeit a tacit one) affecting the woman's stance towards pregnancy rather than an un/sub/pre-conscious motivation. Luker is also clear that women make decisions to achieve multiple goals, only one of which is preventing pregnancy.

Qualitative studies investigating measurement of pregnancy status

There has been virtually no qualitative work investigating the measurement of pregnancy status; only three studies have had any focus in this direction (Moos et al, 1997; Fischer et al, 1999; Family Planning Association, 1999). Each of these studies is reviewed here but will be further commented on in chapter 5 in relation to this study's qualitative findings.

Moos et al (1997) investigated concepts of planning in North Carolina with women of "low or marginal income status" (1997, p.389). Eight focus groups were used, four with African-American women (14 participants) and four with white women (15 participants). All women were aged between 18 and 30, were between 24 and 34 weeks' gestation, and receiving antenatal care. Moos et al found that the concept of a 'planned' pregnancy was not meaningful to many women, with some seeing planning as something that might begin after the pregnancy occurred, rather than before. Some women did, however, find the concept meaningful, usually understanding it as having their life in order before conception. Moos et al also found that women expected to adapt to unplanned pregnancies, and that unplanned pregnancies held more advantages than disadvantages for some women: "repeatedly, the respondents indicated that pregnancies, specifically unintended pregnancies, provide purpose and direction to women's lives by helping a young woman 'grow-up', 'find direction', and 'learn responsibility'" (1997, p.389).

Fischer et al's (1999) study, carried out in 1996 with 18 pregnant women (13 continuing pregnancy, five about to undergo abortion) using depth interviews, provided information on how women understood terms such as "unplanned", "unintended", and "unwanted".

They found that women understood the terms in a variety of ways and stated that "no two women placed the exact same value on factors associated with characterizing a pregnancy as intended, planned, or wanted" (1999, p.119). Broadly, however, they concluded that "planned and intended carried more action-oriented descriptions, while wanting status was associated with emotional factors" (Fischer et al, 1999, p.119). They concluded that understanding of the terms was much more heterogeneous that had been previously recognised, and recommended developing a new measure of pregnancy intendedness.

In Britain, a market research company carried out a study on behalf of the Family Planning Association to explore women's attitudes to planning (Family Planning Association, 1999). The market research company used 48 "hall test depth interviews" (i.e. depth interviews in a hall after screening people on the street) and nine focus groups, each group containing women of similar age and socio-economic status (1997, p.5). The fieldwork was carried out in three places in England (Birmingham, Barnsley, East Dereham).Their main finding was that women of higher socio-economic status were likely to accept the concept of planning a pregnancy, whereas women of lower socio-economic status were not.

In addition to these three studies, there was a interesting reflection on the categories "planned" and "unplanned" by Finlay (1996). He and colleagues had carried out a qualitative interview study investigating teenage pregnancy in Northern Ireland in the early 1990s. In the interviews, the young women were invited to classify their pregnancies as planned or unplanned. Finlay comments:

> We classified approximately ten of our respondents' pregnancies as planned and approximately 40 as unplanned. However, with hindsight, I doubt that they would have used these terms to describe their pregnancies had not the interviewer introduced them. Some of the remaining twelve respondents resisted such categorisation; for example, they preferred to describe their pregnancies as 'sort of planned' or said that they had wanted a baby at some point in their lives and that they were 'not bothered' when" (Finlay, 1996, p.85).

Conclusions

There have been many attempts to assess the planning/intention status of women's pregnancies. Some studies have used single questions with dichotomous response options, suggesting the concept of pregnancy planning/intention is viewed as self-evident and unproblematic. The approach taken in larger national and international surveys has tended to be less crude; pregnancy status has been elicited by means of multi-dimensional questions probing not only intentions, but also contraceptive use, reactions to pregnancy, timing of pregnancy plans and family size intentions. However, these questions have been used in various combinations and in different forms, suggesting a lack of conceptual clarity. For example, table 2.12 shows the considerable disagreement between just six national/international surveys. Also, most of the pregnancy status questions in national and international surveys have been aimed at situations leading to births rather than abortions, the assumption being that all abortions are unplanned/unintended. Although this is a reasonable assumption, evidence has shown that this is not always the case (Price et al, 1997; Kero et al, 2001). There has also been a wide variation in the period of recall of women answering pregnancy status questions. Evidence from three studies suggests that women's answers or perceptions may change between pregnancy and birth (Everett, 1991; Bankole and Westoff, 1998; Joyce et al, 2002), although, as yet, the extent to which this apparent change is real change as opposed to a problem with validity and reliability of the questions has not been assessed. Finally, and probably most importantly, the findings from the national and international surveys have consistently shown that for a proportion of women, pregnancy intentions and contraceptive behaviour are not congruent. Given Karen Luker's (1975) work, this finding should not be unexpected. However, apart from Karen Dunnell's (1979) question which picks up on some ambiguities, most survey questions seem to be based on the assumption that women have clearly-formed intentions regarding pregnancy and that their behaviour will be fully congruent with these intentions. So far there has been no option for ambivalent positions, and qualitative work on lay understanding of pregnancy planning/intentions leading to development of survey questions has been notable by its absence. Overall, the measurement of pregnancy planning/intentions is ripe for methodological (theoretical and empirical) development.

Table 2.12: Dimensions included in assessments of pregnancy status

	Intentions (this pregnancy)	Contraceptive use	Reactions to pregnancy	Timing of pregnancy plans	Family size intentions
Cartwright 1970	✗	✗	✓	✓	✗
Cartwright 1976, 1988 Fleissig 1991	✓	✓	✓	✓	✗
Bone 1973, 1978	✓	✓	✗	✗	✗
Dunnell, 1979	✓	✗	✗	✗	✗
N.S.F.G.	✓	✓	✗	✓	✓
D.H.S.	✓	✗	✗	✓	✓

Chapter 3: Methodological overview

In this chapter I describe the aim of the study, the rationale for my choice of methodologies, and the decisions made at the time of gaining ethical approval.

Aim

The overall aim of the study was:

> To develop a measure of unplanned pregnancy which is valid, reliable and appropriate in the context of contemporary demographic trends and social mores, and can be used to establish population estimates of unplanned pregnancy.

Methodologies required

Unplanned pregnancy is a social construct - intangible and unobservable - unlike bed days, body mass index, or biological markers of disease. Therefore, in order to meet the aim of producing a valid and reliable measure of unplanned pregnancy, two key steps were required: 1) deciding what it was that should be measured; and 2) establishing how it should be measured.

In deciding what it was that should be measured, I was informed by the existing literature (chapter 2). This had revealed that many questions were based on simplistic definitions of pregnancy planning, and among the more sophisticated questions (e.g. the national studies) there was a lack of conceptual clarity. Also, the "inconsistencies" of many women's answers suggested that existing questions did not fully capture the complexity of the construct and were therefore unlikely to provide a sound conceptual basis for developing a new measure of unplanned pregnancy. Similarly, the information available in the existing

psychological and qualitative studies was also not sufficient for my purposes. Therefore, I concluded that establishing a clearer understanding of pregnancy planning/intention was a necessary first step in the study. To this end, I chose an inductive (qualitative) methodology as this would allow the development and generation of ideas during the data collection process, and eventually allow me to develop a conceptual model. As questions based on lay concepts of pregnancy planning were notable by their absence in the literature, I decided to concentrate on lay views of pregnancy planning rather than the views of health professionals or policy makers. By this means I hoped to develop a generative, and therefore more valid, definition of unplanned pregnancy.

Once it was clear what should be measured, I then needed to establish how it should be measured. Obviously, as I was interested in measurement, only quantitative methodologies were suitable. Again, I was informed by the literature which had revealed a plethora of survey questions but no true "measures" or "scales", i.e. sets of quantitative questions with documented reliability and validity. Therefore, I decided to employ a methodological approach called psychometrics. In psychometrics, standard techniques for developing survey questions are used to produce items (or questions), and then specific techniques are used to select items so that they form a valid and reliable scale. Although a sub-discipline of psychology, psychometrics has increasingly been used in the field of health research to improve the measurement of constructs such as "health", "quality of life", and "disability".

In order to produce population estimates, the measure of unplanned pregnancy would need to be included in large scale national surveys. Therefore my preference was for a short, as well as valid and reliable, measure (if this was possible), as fewer questions are cheaper to administer and, ultimately, would make the measure more likely to be widely used.

Objectives

Given the methodologies required for the goals of definition and measurement, the study divided into two stages, qualitative and quantitative, with four overall objectives:

Qualitative stage

1) Using qualitative methods, to elicit women's accounts of the circumstances in which they became pregnant, thereby exploring the frame of reference and the language used by women to discuss this topic.

2) To develop a model of pregnancy planning/intention status from the qualitative findings, identifying the components which contribute to a definition of unplanned pregnancy.

Quantitative stage

3) To produce a quantitative measure of unplanned pregnancy based on the dimensions derived from the qualitative research.

4) To test the validity and reliability of the measure of unplanned pregnancy through a process of piloting and psychometric testing.

Study design and ethical approval

As usual, before beginning the study I needed to decide where and how I would recruit participants to the study and gain ethical approval for this.

Firstly, I considered the target population for the measure, and therefore whose lay views I was interested in. Given that I was interested in the circumstances in which conceptions occurred, ultimately the target population for the production of population estimates was women who were (or had recently been) pregnant. Therefore, I decided to include pregnant (and recently pregnant) women in the study, regardless of how their pregnancy was going to end (or had ended), i.e. birth or abortion. In practical terms, this meant recruiting women from both antenatal and abortion services.

I also considered the role of men in pregnancy planning and the potential differences in views that might occur between a couple regarding the same pregnancy. I felt that exploring men's views could be a legitimate and useful investigation but decided against it for practical and methodological reasons. Firstly, it was unlikely that we would be able to contact all "fathers" - some men do not know that their partner or ex-partner is pregnant, and of those who do, we would have direct contact with only a few of them. Recruiting through the women would thus be our only route of contact and I concluded that this was likely to result in a biased sample of men (e.g. married, older, etc). Secondly, for the same reasons, population estimates of unplanned pregnancy are most likely to be produced through contact with women. I decided, therefore, to concentrate my limited resources on ensuring a valid and reliable measure for use by women.

As the intention was to develop a measure which could produce national population estimates of unplanned pregnancy, I was concerned not to limit the fieldwork to just one part of the country in case some local difference that I was unaware of might affect the data. Consequently, I decided to include as many centres in the study as willing clinicians and my budget would allow. This decision meant that I applied to the London Region Multi-Centre Research Ethics Committee in spring 1998 for ethical approval, and then subsequently to all the relevant local committees. By the end of the study, eight centres from London, Southampton, Salisbury, St Albans, and Edinburgh had taken part.

As I wished to include the full range of women who became pregnant, this meant including women under the age of 18. Through the multi-centre ethical approval we were granted permission to treat women under the age of 18 in the same way as those over 18, i.e. we did not need to seek parental permission for them to take part in the study. For those under the age of 16, we agreed to abide by an interpretation of the Gillick ruling which meant that we included women if: 1) we felt the young woman had sufficient maturity to understand the nature and purpose of the study; and 2) the doctor responsible for the young woman was happy for them to participate. We also agreed to involve or inform a young woman's parents about the study in whatever manner necessary if it was at the request of the young woman.

I decided (for this study) not to make special provision for non-English-speaking women and gained agreement from the multi-centre ethics committee for this. My rationale was that: 1) there are a substantial number of methodological problems regarding translation of transcripts or interviewing with an interpreter in the type of qualitative study I wished to carry out; 2) a measure cannot simply be translated into another language - a separate process of validation must carried out, and is a substantial piece of research in itself; and 3) women who speak *no* English may face different and/or additional barriers to preventing an unplanned pregnancy. I expected that women who spoke no English would be a very small group, and that the vast majority of women for whom English is not their first language would be included in the study (i.e. most would have sufficient English to take part). This expectation was borne out.

Overall, the aim of the study design was to include as wide a range of women as possible to ensure data capable of producing a valid and reliable measure.

Validity and Reliability

A *valid* measure is one which measures the intended construct accurately and adequately, and a *reliable* measure is one which is relatively free of error. The formal definition of reliability is:

$$Reliability = \frac{Subject\ variability}{Subject\ variability + Measurement\ error}$$

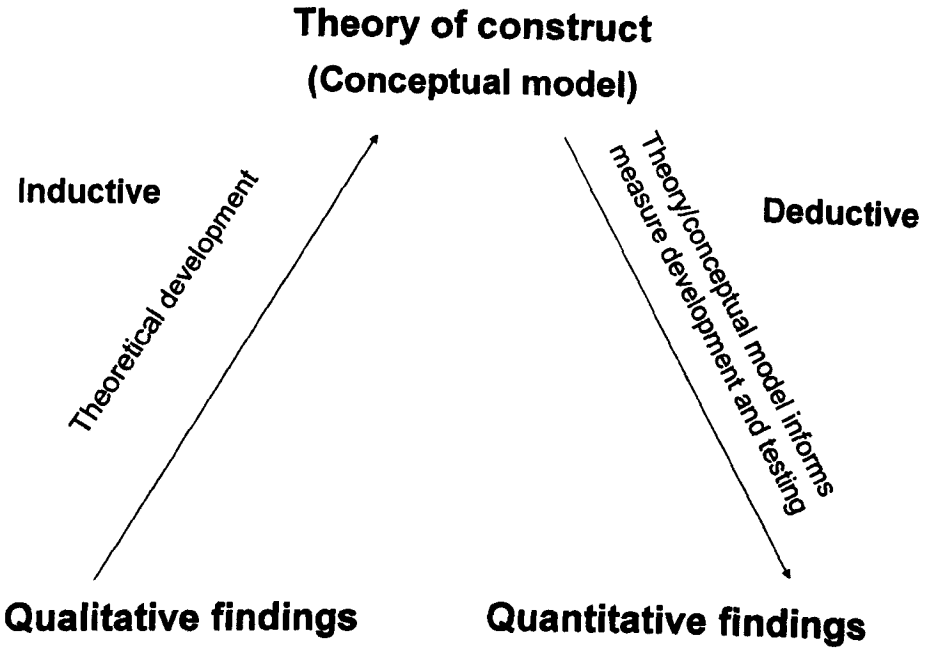
(Dunn, 1989; Streiner and Norman, 1995).

Hence, at each stage of the study design I was concerned with ensuring the accuracy of measurement and in minimising measurement error.

For most of the qualitative stage, I was concerned with ensuring the validity of the measure. By understanding women's circumstances of pregnancy in relation to pregnancy planning,

I was able to outline the structure of what should be measured, summarising it in the form of a conceptual model (chapters 5, 6, and 7). This model then formed the conceptual basis of the measure, ensuring validity of content (chapter 10). Further, in the quantitative stage, psychometric testing of the validity of measure was informed by the qualitative findings (chapters 11 and 12). A summary of this inductive/deductive process is shown in figure 3.1.

Figure 3.1: The inductive/deductive process of the study



In the qualitative stage, I also included in the study design an assessment of the stability of women's accounts over time (chapter 8). This gave me an insight into the stability of the construct and allowed me to form an hypothesis about the reproducibility of scores over a long time period (chapters 11 and 12). A sense of the construct's stability over a long time period was essential for interpreting long term test-retest reliability scores (i.e. it allowed me to discern whether the long term test-retest reliability coefficient was a true test of

reliability or whether the inherent instability of the construct made this simple a measure of reproducibility rather than a test of reliability.) In the quantitative stage, I also carried out the usual formal psychometric tests of reliability, assessing internal consistency and (short term) test-retest reliability (chapters 11 and 12).

At the end of the psychometric testing, I carried out a multifactorial analysis of factors associated with pregnancy planning using the data collected for development and testing of the measure (chapter 14). The results of this analysis further develop our knowledge of the construct and can be seen as beginning the inductive process again. (In figure 3.1, this could be depicted as an arrow from "quantitative findings" up to "theory of construct".)

Summary

The overall aim of the study was to develop a measure of unplanned pregnancy which is valid, reliable and appropriate in the context of contemporary demographic trends and social mores, and can be used to establish population estimates. In order to achieve the aim, I chose to employ two distinct methodologies: 1) qualitative, focussing on defining the construct of interest; and 2) quantitative/psychometric, focussing on the measurement of the construct. The aim of all aspects of the study design was to ensure validity and reliability of the measure.

Chapter 4: Methods of the Qualitative Stage

In this chapter, I outline the methods of the qualitative stage. The chapter is divided into six sections: the objectives of the qualitative stage, methods of data collection in both the main investigation and follow up, my analytic approach, the potential limitations of the methods employed, and a description of the characteristics of the interviewees.

Objectives of the qualitative stage

At the beginning of the qualitative stage, I had a number of specific objectives that I wished to meet. Broadly, these were:

1) To explore women's pregnancy circumstances, particularly their frame of reference and the language they used when talking about pregnancy.

2) To test Finlay's (1996) hypothesis that if we did not introduce terms such as "planned" and "unplanned" to women during the interviews, then women would not use them.

3) To discover how women understood the terms "planned", "unplanned", "intended" and "unintended", "wanted" and "unwanted" which are commonly used in the medical, demographic and health policy literature.

4) To establish if women's accounts of their pregnancy circumstances changed over time, particularly between pregnancy and after birth as suggested by (limited) evidence from the UK and US.

5) To produce a conceptual model or set of indicators which can be used to inform item development in the quantitative stage of the study.

The challenge was to design a data collection and analysis strategy which would meet all these objectives. I opted for a main investigation, plus a follow up.

Main investigation

Data collection method

Given that I wished to elicit women's accounts of the circumstances of their pregnancies, exploring behaviour and reasoning in detail, depth interviews[1] were the method of choice. Moos et al (1997) and the Family Planning Association (1999) had previously used focus groups to explore women's attitudes to pregnancy planning, but I wished to do more than just explore attitudes: I wanted women to describe their own (actual) situations in detail. As these situations had the potential to be complex and sensitive (e.g. discussing sexual behaviour, abortion, etc) the time and privacy afforded by depth interviews made it the most appropriate method for my purposes.

Interviewees

My aim was that the ultimate measure would be applicable to pregnant (or recently pregnant) women in Britain. Therefore I needed to ensure that the sample was at least broadly representative of the variety of pregnant women that could be found in Britain. To achieve this, I decided to draw a purposive sample on the following three criteria:

1) pregnancy outcome (i.e. continuing pregnancy and abortion)
2) women's ages
3) women's locations in Britain

To include both continuing pregnancies and abortions, we drew women from antenatal

[1] Depth interviews are flexible interviews which use normal modes of conversation to explore a topic in depth. A topic guide is used (rather than structured questions) and interviewees are able to develop their own themes (Mason, 1996; Bowling, 1997).

clinics and abortion services. The centres from which we recruited women were:

Royal Infirmary & FPS, Edinburgh	antenatal clinic and termination service
St George's Hospital, South London	antenatal clinic
Princess Anne Hospital, Southampton	antenatal clinic
St Mary's Hospital, West London	termination service
District General Hospital, Salisbury	termination service
GP, South-East London	GP patients

Using antenatal and abortion clinics was the most effective way of recruiting women because these services gave us access to a large number of women of different ages, backgrounds and locations at any one time. This then enabled me to ensure that both the continuing pregnancy and abortion interview groups included a range of ages (i.e. at least one woman, preferably more, in each of the following age bands: 16 and under, 17-19, 20-24, 25-29, 30-34, 35-39, 40 and over).

The first two selection criteria, pregnancy outcome and age, were most under my control. Location was less so because I was dependent on the clinicians who had agreed to work with me (which in turn determined the centres included in the study), and I had to balance the costs of travel against resources for running the rest of the study. I felt it was important to include women from different areas in the country because they had experienced different health services, and I wanted to ensure that issues that were raised in the interviews were not specific to women going through particular services or living in one part of the country.

Although using antenatal and abortion services to recruit women was very effective, I was aware that we were not recruiting women at their first point of contact with health services (i.e. all would have been to a GP or family planning clinic previously). Therefore, I considered recruiting women via general practitioners as a way of checking if there was a difference. One GP agreed to become involved with the study; others that I spoke to (a

group attached to LSHTM and a group in Hertfordshire) were not interested. Consequently, three women were recruited via the general practitioner (all continuing their pregnancies, all in the first trimester).

Recruiting the sample

In order for women to take part in the study, they had to receive a recruitment/information pack. These packs were tailored to suit each recruitment centre, but essentially contained the same information (appendix 5). Each recruitment pack included a doctor's letter, an information sheet and a consent form which the women had to fill in and sign. The content and design of the packs was largely determined by the requirements of the ethical review process.

Women from the different services were recruited in different ways, depending on what suited the individual services best. Either a researcher attended clinic sessions and spoke to women directly to tell them about the study, or a health professional involved with running the service gave out the recruitment packs. A researcher attending a clinic session was the more successful method in recruiting women to the study. In practice this meant the researcher agreed with staff in advance what was the least disruptive moment to speak to the women (e.g. while waiting to see a nurse or midwife, after seeing the doctor), then was allowed to pick up women's notes at that point to check who they were, call them from wherever they were waiting, take them to a consulting room, tell them about the study, give them the recruitment pack and answer questions, and then send them back to carry on with their appointment. Occasionally women posted back consent forms, but more usually they filled them in while the researcher was present. Occasionally, women were quite clear that they were not interested in the study or that they did not have time to take part, and were never pressed to do so. Women who did agree to take part were reassured that they could change their mind at any time. To arrange interviews, it was agreed in advance with the woman whether we could ring them or write to them at home or elsewhere.

The women most likely to decline to take part in the study were young women continuing

their pregnancy, and women going for abortions. They were also the women who were most likely to change their mind about being interviewed and most likely not to turn up to the interview (table 4.1). In order to ensure that there were enough of these women in the sample, extra recruitment sessions were carried out at the St Mary's/Raymede termination service and the teenage clinic at St George's. Difficulties in recruiting these two groups of women to interviews studies have been documented elsewhere (Phoenix, 1991; Tabberer et al, 2000; Remennick and Segal, 2001)

The final sample comprised 47 women of a range of ages and pregnancy outcomes (table 4.2). The number of women from each centre was: St Mary's - 16; St George's - 14; Edinburgh - 9; Southampton - 4; the London GP - 3; and Salisbury - 1.

Conduct of the (main round) interviews

All the interviews were carried out at a time and place convenient to the woman. The interviews were usually carried out in the woman's home if the woman was over 20 and continuing her pregnancy. Teenagers who were continuing their pregnancies tended to opt for being interviewed in their antenatal clinic, often because they were living with their parents and the clinic offered more privacy. Most women who were terminating their pregnancy opted to be interviewed in the clinic or hospital, usually for reasons of privacy or secrecy. Overall, 20 interviews were carried out in women's homes, 23 were carried out in clinic, and four elsewhere (e.g. a car, a bed & breakfast hotel, at LSHTM, and at a woman's place of work).

The interviews were normally carried out one-to-one. However, for five interviews other people were present: in two cases the husbands were present for most of the time; in one case the boyfriend was present for all of the time; in one case a woman's friend was present for about half of the time; and in one case the boyfriend was present for brief periods. The women (or the couples) had agreed in advance that the other person was to be present. Although it would have been more consistent methodologically to have all the interview conditions the same, we felt that insisting the other person leave would have caused ill

Table 4.1: Main interviews, recruitment of sample

Centre	Recruitment method	Completed consent forms	Women contacted	Interviews arranged	Interviews achieved
Edinburgh antenatal /TOP	Researcher attending clinic	18	12	12	9 (two cancelled, one did not turn up)
St George's antenatal	Researcher attending clinic	25	16	15 (one woman changed her mind)	14 (one cancelled)
St Mary's/Raymede TOP	Researcher attending clinic	40	33	32 (one woman changed her mind)	16 (17 women did not turn up)
Southampton antenatal	Midwives recruiting in clinic	6	4	4	4
Salisbury TOP	Doctor recruiting in clinic	4	4	1 (three women changed their minds)	1
GP, London	Doctor recruiting in clinic	3	3	3	3

NB: The apparently high "non-attendance rate" for interviews at St Mary's is due to the fact that women at this clinic were more likely to agree to an interview as the interview could be timed to coincide with their follow-up appointment for contraception. The 17 women who failed to attend their contraceptive appointment also did not turn up to their interview. At the Edinburgh abortion clinic, women were less likely to agree to an interview initially (i.e. complete a consent form) because they did not wish to be interviewed at home nor did they wish to make another (unscheduled) visit to the clinic. In the Salisbury abortion clinic, only one interview was achieved from three initial agreements.

Table 4.2: Main interviews, age by outcome of pregnancy

	Age group						
	≤16	17-19	20-24	25-29	30-34	35-39	40+
Continuing pregnancy*	**GB116 (age 16)** GB117 (age 15)	GB107 (age 17) **GB110 (age 17)** RK108 (age 17) **GB122 (age 17)**	**GB112 (age 22)** **GB114 (age 20)** **RK107 (age 23)** **RK109 (age 21)**	GB113 (age 25) **RK105 (age 28)** **RK106 (age 26)** **GB115 (age 27)**	**GB104 (age 33)** **GB105 (age 31)** **GB106 (age 30)** **RK102 (age 31)** GB111 (age 30) **KW102 (age 31)** **RK103 (age 33)**	**GB101 (age 36)** **GB102 (age 36)** **RK101 (age 35)**	GB108 (age 40) **GB109 (age 42)** KW101 (age 43) (had miscarriage) GB123 (age 40)
Termination of pregnancy	GB130 (age 16)	GB119 (age 19) GB128 (age 17) GB129 (age 17) GB131 (age 19)	GB118 (age 22) RK110 (age 20) GB125 (age 22)	GB103 (age 27) RK104 (age 27) GB126 (age 26) GB127 (age 26)	KW103 (age 32) KW104 (age 31) GB121 (age 32) GB124 (age 31)	GB120 (age 37) KW105 (age 38)	KW106 (age 42)

* Women shown in bold also did a follow up interview

feeling and might have jeopardised the interview altogether.

There were three interviewers: Geraldine Barrett, Rolla Khadduri, and Kaye Wellings. In the main round GB carried out 31 interviews, RK carried out ten, and KW carried out six (the interview identifiers include the interviewers' initials - see table 4.2). There were minor differences in interviewing style, but the content of the interviews and the themes emerging from them were consistent.

In seeking ethical approval for the study, prior to the start, two committees were concerned that interviewing women having abortions would cause them distress. I agreed with these committees (Edinburgh and Salisbury) that where we felt a woman needed counselling (on no particular criteria), we would encourage her to use the counselling services attached to the abortion service. In fact none of the women from these services appeared to require counselling. One abortion service (St Mary's/Raymede) had no counselling service attached to it (although it had in the past, and does again now) and the ethics committee did not ask for any action with regard to referring women for counselling. However, in three interviews we felt there might be a need for counselling (two women with late abortions, and one woman having her fifth abortion) and offered the telephone number of a means tested counselling co-operative in North London. One woman accepted the telephone number.

The subject matter of the (main round) interviews

The aim of the interviews was to encourage the women to talk as freely as possible about the circumstances of their pregnancies. I also wanted to find out how they understood terms such as "planned" and "unplanned" but at the same time test Finlay's (1996) hypothesis that if we did not introduce the terms, then women would not use them. I devised a topic guide which would allow us to achieve all these aims. The full topic guide is shown in appendix 6 and included the following topics:

1) Background/socio-demographic information
2) Current pregnancy situation - recruitment circumstances
3) Earliest awareness of pregnancy

4) Contraception around the time of pregnancy
5) Confirming pregnancy
6) Feelings about being pregnant
7) Decision about pregnancy
8) Orientation to motherhood
9) Timing of childbearing
10) Partner
11) Terms: planned/unplanned/intended/unintended/wanted/unwanted

The first three topics usually occurred in the order above, but the order and time spent on the rest of the topics varied widely depending on what the woman had to say. However, understanding of terms (topic 11) was always probed at the end of the interview. Until this topic, interviewers avoided introducing these terms (any mention of the terms by women before topic 11 was spontaneous). After women's understanding of the terms had been explored, they were asked if they would apply any of the (self defined) terms to their pregnancies.

All of the depth interviews were taped and transcribed verbatim. No women objected to being taped.

Follow up

The main round investigation took place at one point in time and I was aware of the evidence suggesting that women could change their reporting of pregnancy planning over time, particularly after birth. I wanted to find out, qualitatively, if/how this happened.

When we initially recruited women who were continuing their pregnancies, we told them (verbally and via the information sheet) that we would possibly be carrying out further interviews and that they would have an opportunity to decide whether to take part. At the start of the study I considered the possibility of interviewing women early in pregnancy, late in pregnancy and after birth and therefore asked the first few women if would consider

being interviewed again towards the end of their pregnancy and again afterwards. Most women were negative about being interviewed later in pregnancy, preferring to be interviewed again after the birth. For this reason and the worry about interview overload (particularly the danger of losing the "post birth" interview which I was most interested in), I decided that we would not interview again during pregnancy but contact women after the birth.

I ruled out re-interviewing women undergoing abortion at an early stage (and did not seek ethics approval for this). Although it would have been interesting to find out how women recast their thoughts over time about the circumstances leading to their abortion, the main focus was on the effect of a birth on women's accounts. I was also aware that although women might be happy to talk to us about their abortion around the time it was happening, they might be less keen to be contacted six months later when their lives had moved on. This proved to be the case as women made comments to us during the interviews that they were happy to talk about the abortion at this time but they soon expected to draw a line under it and put it in the past. Also, as I had suspected, there would have been enormous practical difficulties in arranging follow up interviews with these women as a large number of them could not be contacted at home (although they were happy to be interviewed in the clinic) for reasons of confidentiality.

Women re-interviewed

Of the main sample of 47 women, 27 women were continuing their pregnancies and could potentially be followed up. When asked about being re-interviewed after the birth, only one woman declined for practical reasons (she was a hospital doctor who was going back to work very soon after the birth). Of the other 26 potential interviewees, we interviewed 20 (table 4.2). We failed to re-interview the other six because five had moved (one to Australia) and I were not able to obtain forward contact details for them. One woman reputedly had the same contact details as before (her partner said she lived there) but she never answered the phone, never replied to any of the messages left with her partner, and did not reply to a letter, yet originally she had been quite happy to be followed up. It is impossible to know whether her partner was passing on the information, or if there was

some other problem.

At the time of the second interview, women's babies ranged in age from two-and-a-half months to six months. The length of time between the first and second interviews was at least seven months for all women and, in some instances, as much as ten months.

Conduct of the (follow up) interviews

As before, the interviews were carried out at a time and place convenient to the woman. For 19 of the 20 women, the interviews were carried out in the interviewees' homes, including the teenagers who were still living with their parents. This was in contrast to the main round interviews because, by this time, being interviewed at home was more convenient than getting to a clinic with a small baby. One interview was carried out at an interviewee's workplace because this was most convenient for her.

As before, there were three interviewers: Geraldine Barrett, Rolla Khadduri, and Kaye Wellings. RK interviewed four of the women she had interviewed previously, KW interviewed one woman whom she had interviewed previously, and GB interviewed 15 women (re-interviewing 12 women and interviewing three women previously interviewed by RK). We decided to use the same interviewer to re-interview where possible because of the rapport built up previously.

In two interviews the husbands were present, as they had been previously.

Subject matter of the (follow up) interviews

The main aim of the follow up interviews was to find out if women had changed their accounts of the circumstances in which they became pregnant. Essentially, there were two options for this. Either we could go back to the woman and ask all the same questions (i.e. the main round topic guide) or we could try a more indirect approach. My feeling was that trying to ask the same questions in the same manner would feel very artificial. Also, I wanted to find out what had happened to the women since we last saw them and if there

were any significant changes in circumstances, thoughts, or feelings. Hence, I opted for an approach which allowed us to ask for new information as well as to address topics we had covered previously. The topic guide is shown in appendix 7. As shown, we asked about the rest of the woman's pregnancy, her delivery and postnatal period, her feelings towards (new) motherhood, and her views on any future pregnancy (eliciting any thoughts/intentions/plans/actions the woman might have). As a way of moving the conversation on to previously discussed material, we asked a direct, but broad, question about hindsight, along the lines of: "If you could go back to that time, knowing what you know now, do you think you would do things the same?" This allowed us to talk about the past events in a reasonably natural manner and gave us an opportunity to assess the extent to which women's accounts had been recast or reconstructed over the intervening period. At the end of the interview we again asked women to define the pregnancy "terms" and see if they could apply any to their pregnancies. This, again, was a mechanism for addressing previously discussed material.

Analysis:

Review of the transcripts and discussion of themes among the interviewers was an ongoing process during interviewing, although the main analysis was carried out after interviewing was complete. One of the ongoing discussions that KW and I had, which was useful in thinking about the data, was about "signs" and "signifiers", terms from structuralism and semiotic theory. As Hall describes:

> "The *signified* is the concept to which a word (for example) refers, such as the concept of a spherical object to which the word 'ball' refers or the concept of deep, interpersonal feeling that is designated by the word 'love'. The *signifier* is then that word, image, or representation that is used to designate the *signified*, such as the words 'ball' or 'love' (or the image of a skull and crossbones, for instance to signify a poisonous substance). The *sign* is Saussure's term for the combination of the *signifier* and the *signified*" (Hall, 2001, p.135)

Although in no way did I carry out a semiotic analysis, the idea of signs and signifiers was helpful. For instance, I was interested in women's intentions with regard to pregnancy but

did not restrict myself to explicit statements using the word "intend", but looked at the whole range of ways in which women could signify the concept of intention.

Data analysis process

Although KW, RK and I discussed the data whilst interviewing, I did not begin the formal process of analysis until interviewing was complete. In order to manage and make sense of the data, I used the National Centre for Social Research's "framework" technique (Ritchie and Spencer, 1994). This technique has five distinct steps:

1) familiarisation
2) identifying a thematic framework (and developing a coding frame)
3) indexing (applying codes systematically to the data)
4) charting (rearranging the data according to the thematic content in a way which allows within and between case analysis)
5) mapping and interpretation

The National Centre argues that this method of analysis is both flexible and systematic and encourages objectivity and maximum use of the data. In practical terms, the steps were carried out in the following way:

1) familiarisation: I became very familiar with the data a) having carried out the majority of the interviews; b) transcribed 12 of the interviews; 3) listened to KW's interviews and all my interviews which had been transcribed by someone else in order to correct mistakes; 4) re-read RK's interviews.

2) identifying a thematic framework/developing a coding frame: I began this process by reading the interviews and jotting down words which could be used as codes on a piece of paper (e.g. 'contraceptive situation at time of conception', 'reaction to pregnancy test'). Gradually groupings began to emerge, and I altered phrases to make them fit the data better. Eventually, I ended up creating a coding frame. I then coded my first four interviews using the coding frame to see if the coding frame was usable and made revisions as necessary.

3) indexing (applying codes systematically to the data): I used the coding frame shown in appendix 8 to code my interview transcripts. This was a straightforward pencil and paper method where I marked passages of the transcript with a code.

4) charting (rearranging the data according to the thematic content in a way which allows within and between case analysis): Using Excel, I built a grid with the codes across the top and interview identifiers down the side so that it was possible to see a summary of what any interviewee may have said on a particular code, with page references to the interview transcripts so that access back to the original data was quick and easy. An extract of my charting sheets is shown in appendix 9. Carrying out the process of charting was time consuming, but was useful in that it meant I was extremely familiar with the data. The charting sheets also provided a very clear and accessible starting point for analysis.

At the charting stage I also carried out a process of validation, as recommended by Armstrong et al (1997). KW re-read five interviews and then followed them in the charting sheets to check that her interpretation of them was the same as mine (which it was).

5) mapping and interpretation: This was the stage at which I really began to develop ideas about the data. This was a process of variously writing descriptive accounts, drawing diagrams to clarify ideas, testing these ideas back against the data and modifying where necessary, looking for associations between concepts and between concepts and women's characteristics (e.g. age, marital/partnership status), and discussing the meaning of what was found.

My approach to coding and analysis

Coding and analysis of qualitative data can be carried out in different ways, even when using the same formalised technique. I prefer to code using very concrete, descriptive codes at the beginning and then, during analysis (for me, the mapping and interpretation stage) move to a more abstract and analytical conceptualisation of the data. It is possible to carry out this process of moving from the concrete to the abstract, thematic to the conceptual, and descriptive to the analytical during coding itself, for example, as in grounded theory (Glaser

and Strauss, 1967; Struass 1997). In grounded theory, the codes themselves are changed as more interviews are conducted and analysed, often beginning with very general coding, moving to intense coding around small sections of data. In contrast, using the framework method, I use the indexing (coding) and charting stages as a way of describing and categorising the data, and only do intense work around small parts of the data at the mapping and interpretation stage. Mason's warning about how to treat codes fits my style very well:

> "Do not treat your categorically indexed slices of data as more concrete, uniform or static than you know they are. Do not be tempted to view them as tidy and labelled variables, when you know that they are loose and flexible groupings of unfinished resources which you developed primarily as a retrieval mechanism" (Mason, 1996, p.118)

At the mapping and interpretation stage I use my coding scheme and charting sheets to identify sections of data that I am interested in, then usually move back to the original transcripts, and develop and test my ideas in a way that is not constrained by the original codes. For me, the advantage of going through the framework process first is that it ensures that any such intense analysis is within the context of the full data set, i.e. the comprehensive and systematic approach of the framework technique prevents me from focussing on my favourite sections of data in a biased manner.

Presentation of data

To present qualitative data I use three main means: written description, diagrams, and tables. In each of these, I may use simple counts to describe the data. My rationale for this is based on Clive Seale's argument of using numbers in qualitative data to establish the "generality" of a phenomenon:

> "...counting is an important way of showing data to the reader as fully as possible, enabling readers to judge whether the writer has relied excessively on rare events, to the exclusion of more common ones that might contradict the general line of argument. This can help readers gain a sense of how representative and widespread particular instances are" (Seale, 1999, p.128).

At no stage should these simple counts be interpreted as proportions of a random

probability sample (with concomitant external validity) or be taken to imply such an interpretation on my part.

Potential limitations of the qualitative stage

In the qualitative stage, we elicited women's accounts of the circumstances in which they became pregnant. Such accounts were extremely informative, but inevitably are always one step removed from actual events. Mason warns:

> "... be aware of epistemological shortcomings of interviewing .... For example, if you are interested in people's experiences, these can only be recounted in interviews. If you are interested in people's interpretations and understandings you must bear in mind that talking to people will not enable you to get inside their heads, and that you will only be able to gain access to those interpretations and understandings which are revealed in some way in an interview" (Mason, 1996, p.40).

Given the private nature of the phenomenon we were interested in, and the importance of women's interpretation and understanding of events surrounding it, I judged that depth interviewing was our best (albeit imperfect) tool.

Also, our first contact with women was when they were already pregnant. The study design incorporated an element which allowed me to examine the way in which women may have recast their thoughts in light of a subsequent birth, however, it is possible that women may have already recast their thoughts by the time we saw them at first interview. The extent of this effect is impossible to estimate. I made the choice to target already pregnant women because there are obvious methodological difficulties in interviewing women about their feelings towards pregnancy *before* they are pregnant. Interviewing a sample of women and following up those who become pregnant over time could be achieved in a longitudinal study, but this would be slow and costly (and probably unlikely to be funded). Also, it is possible that participating in a long term study, periodically describing one's thoughts and feelings about pregnancy, could effect behaviour change in women that would not otherwise occur. The choice of interviewing women once they were pregnant was the most

appropriate method given the methodological/practical constraints, and also more compatible with the way a measure of pregnancy planning/intention could be used practically in the future.

Characteristics of the interviewees

Of the 47 interviewees in the main round of interviews, 28 women were continuing their pregnancies (although one had a miscarriage a couple of days before the interview). Six were in the first trimester of pregnancy (i.e. 12 weeks or less gestation), 13 were in the second trimester, and ten were in the third trimester. Of the remaining 19 women, two were about to have abortions and 17 had recently had abortions, usually in the last two weeks; all were in the first trimester except two women who were 19 and 21 weeks respectively.

Interviewees' ages ranged from 15 to 43. In summary, there were 11 teenagers, 15 women in their 20s, 16 women in their 30s, and five women aged 40 or over. Fifteen were married, one was separated, one was divorced, nine were cohabiting, and 21 were single. Thirteen women already had children (eight of the married women, one divorced women, and four of the single women). All fifteen married women were continuing their pregnancies, as were 13 single women. Of the women having abortions, 17 were single, one was divorced, and one was separated.

The sample contained 18 women born abroad (recruited from the London and Edinburgh centres), all of whom were settled in Britain, some with British partners (table 4.3). There were also five women who were born in Britain but whose ethnic origin was not British.

The educational and occupational level of women in the sample varied widely. Eighteen women had completed degree-level (or beyond) education. These 18 women included: three doctors, two teachers, a nurse, a university lecturer, an accountant, a cameraman, a dress designer, an advertising assistant, four post-graduate students, and two housewives, and one woman who was unemployed. Two women were at degree level: one woman was a full time student studying for a degree, and another was about to start a degree course. A further

14 women had been in full time education at least until the age of 18, with some completing further vocational training. Some of the occupations of these women included nurse, midwife, dental nurse, nanny, nursery nurse, hotel housekeeper, secretary, receptionist, chef, youth officer. Four women were studying for GNVQs (post 16 qualifications) and one girl was still at school. Finally, there were eight women who had left school at 15 or 16, usually with poor GCSE grades. Of these women, one was a care assistant in a nursing home, and the rest were either housewives or unemployed.

Table 4.3: Nationality and ethnicity of sample

Interviewee	Country of birth	Ethnicity (if different to country of origin)	Lived in Britain
	Africa:		
GB111	Sierre Leone		5 years
GB120	Eritrea		9 years
	South America:		
GB117	Colombia		2 years
RK103	Brazil		6 years
	Europe:		
GB126	Ireland		5 years
GB101	Greece		19 years
GB118	France		1 year
RK106	France	Afro-Caribbean	6 years
GB123	Italy		15 years
GB130	Portugal		6 years (since child)
RK105	Denmark		3 years
KW105	Finland		4 years
	Elsewhere:		
GB113	Australia		1 year
GB121	Australia		2 years
GB127	Australia		3 years
RK107	Bangladesh		18 years (since child)
GB103	Taiwan		<1 year
RK110	Morocco		15 years (since child)
GB116	Britain	Afro-Caribbean	All life
GB124	Britain	Afro-Caribbean	All life
GB125	Britain	Moroccan	All life
GB110	Britain	Sri Lankan	All life
RK102	Britain	Pakistani	All life
Remaining 24 interviewees	Britain	British	All life

Summary

In order to achieve the objectives in the qualitative stage, we carried out two rounds of depth interviews (a main investigation and follow up). I drew a purposive sample of 47 women who varied in terms of age, pregnancy outcome, and location, to ensure the generalisability of concepts. Of the women who continued their pregnancies, we re-interviewed 20 after the births of the babies in order to assess the stability of their accounts over time.

Chapter 5: Women's use and understanding of terms

In this chapter[1], I present data from the qualitative stage of the study addressing women's use and understanding of the terms "planned", "unplanned", "intended", "unintended", "wanted" and "unwanted". I begin with the question of whether women used the terms spontaneously or not, and then describe how women defined the terms when asked to do so. I compare these definitions with those from a small U.S. study (Fischer et al, 1999), the only other study to explore lay definitions of the above terms. Finally, I assess how women's applied terms relate to the main body of their interviews and compare this with their previously offered definitions.

Women's spontaneous use of terms

Throughout the interviews, women were able to talk at length about the circumstances of their pregnancies. Most did not use the terms "planned", "unplanned", "intended", "unintended", "wanted" or "unwanted" to classify their pregnancies. Unprompted, only 13 women used the terms (or their related verbs) at all. Three of these women explicitly classified their pregnancies as "planned", one of whom also used the term "intended". All three were married, aged over 30, and educated to degree level. Eight women spontaneously used terms such as "unplanned", "unintended", "wasn't planned", and "not planned" to describe their pregnancies. These women ranged in age from 17 to 37, had varied levels of educational attainment, and included both pregnancies which were being continued and terminated. Two of the eight women (both continuing pregnancy) and a further four women (all terminating) also described their pregnancies as "accidents" or "mistakes". Finally, two women referred to "planning" in passing in their interviews but did not classify their pregnancies; both women were older and educated to degree level. The data support Finlay's (1996) hypothesis that these terms are not spontaneously used by women. In his

[1] A version of this chapter is forthcoming in *Social Science and Medicine* (see appendix 10).

study of 62 pregnant teenagers in Northern Ireland, only one used the term "unplanned" spontaneously, leading him to conclude that, although they understood the terms, "these were not truly 'emic' categories for most respondents" (Finlay, 1996, p.79). The idea that these terms are not 'emic' categories fits with the data: the terms clearly did not provide a central classificatory role in women's accounts. Also, the data show that Finlay's suspicion applies not only to teenagers, but to women of a range of ages.

Women's explanations of the terms

At the end of the interview women were presented with the terms "planned", "unplanned", "intended", "unintended", "wanted", and "unwanted" and asked what they understood by them. This section presents the explanations women gave.

"Planned" and "unplanned"

Women were most likely to say a "planned" pregnancy was a pregnancy which a woman and her partner had discussed and agreed beforehand, that there had been a conscious decision to become pregnant, and/or it was a pregnancy where a longer term view had been taken about how the baby would fit into the woman's/couple's life. Other definitions were also offered (figure 5.1) and generally overlapped the main areas. A few women suggested that it was possible to plan a pregnancy without a partner, but it was seen as unusual, the norm being planning with a partner.

In contrast to "planned", the explanations offered for "unplanned" pregnancy tended to reflect the woman's stance - i.e. her lack of intention - rather than any positive action she may have taken. The words "accident" and "mistake" were commonly used by way of explanation (figure 5.2). This finding is interesting in light of Judith Green's (1997) work on the social construction of accidents. In everyday conversation accidents are characterised as unmotivated and unpredictable events, and therefore "the victim, in an ideal accident, has no previous knowledge of the misfortune and therefore cannot be held responsible"

Figure 5.1: Definitions of a "planned" pregnancy

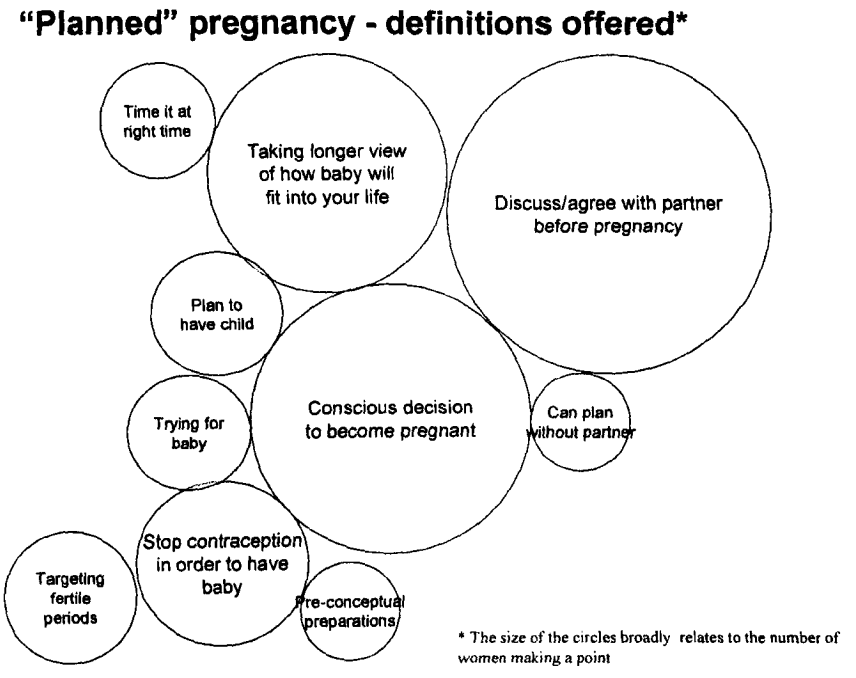
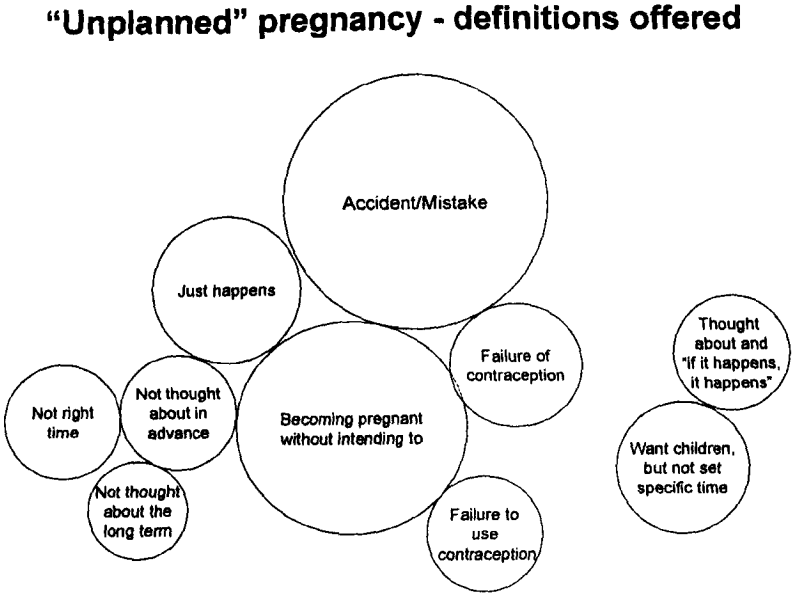


Figure 5.2: Definitions of an "unplanned" pregnancy



(1997, p.2). However, Green goes on to demonstrate that, in practice, accidents are neither necessarily unmotivated nor unpredictable and are, in fact, surrounded by moral enquiry. Debate about the extent of individual responsibility for an "accidental" or "unplanned" pregnancy can be seen in the women's explorations of the terms. Some women stated that an unplanned pregnancy could be caused by a failure of a method of contraception and some said it could include failure to use contraception, however a minority of women did not accept that failure to use a method of contraception could be a valid criterion with which to define an unplanned pregnancy, e.g.:

> "If you weren't intending to become pregnant and you weren't using contraception, then you're being irresponsible [laughs], and by default you must have been intending to become pregnant, because you weren't doing anything about *not* becoming pregnant" (GB109, age 42, continuing pregnancy).

There was also a minority view that an "unplanned" pregnancy could include some degree of desire for a pregnancy or acceptance if it occurs or having children had been discussed but a specific time had not been set, e.g.:

> "...an unplanned pregnancy I would say, fair enough, it wasn't planned but maybe it was something they were thinking about in .. in the not too far future, that's how I would say it. That is something they had discussed, the couple's probably discussed it and they think it means six months down the line but it happens within a couple of months but it wasn't planned to have one straight away but they are pleased that it's happened" (GB124, age 31, abortion).

Intended and unintended

On the whole, women were less sure about the definition of an "intended" pregnancy, and tended to take longer in offering their explanations. Many women thought that the term "intended" was interchangeable with the term "planned". Other definitions were also similar to those offered for "planned", e.g. deliberately not using contraception, actively trying to become pregnant, etc. However, a few women saw the term "intended" as distinct from "planned". Where a distinction was made, the additional dimensions to planning were more action orientation, greater deliberation and more precise timing. For example, one

woman described the possible difference:

> "... you could always intend to get pregnant but you actually might not have been planning to do it from June 1998 onwards. So perhaps not every intended pregnancy is planned. That's the only thing I would say, that they are not absolutely interchangeable, but on the other hand, loosely speaking one might use them [interchangeably]" (GB101, age 36, continuing pregnancy).

I also found there was a minority view that "intended" meant keeping the baby, regardless of the circumstances. The term "intended" was disliked by some women, who said they would never use it in relation to pregnancy.

The relationship between the terms "unintended" and "unplanned" was similar to that between "intended" and "planned". Most women felt that the term "unintended" was interchangeable with the term "unplanned", although one women made a clear, if subtle, distinction between the two:

> "I think unplanned probably ..... I suppose wouldn't necessarily ... to me, wouldn't necessarily mean that you were using a method of contraception that failed, and that it may be that you perhaps got caught out and weren't using contraception or had a one night stand when you weren't expecting to have sex and didn't have a contraceptive available. [.....] I suppose I would think unintended .... unintended was a bit less under human control in that perhaps that more implies a contraception failure .. than just a failure of doing something about it" (GB106, age 30, continuing pregnancy).

As with "unplanned" pregnancy, "unintended" could include the failure of a method of contraception or failure to use contraception, and again, a minority of women did not accept that simple non-use of a method of contraception could be part of the definition. A few women described "unintended" as not wanting the baby. The word "unintended" was similarly disliked by some who said they would never use the word in relation to pregnancy. Conversely, some felt that "unintended" was preferable to "unplanned".

"Wanted" and "unwanted"

Many women found it difficult to define a "wanted" pregnancy, using the same word to

explain the term, e.g. wanted is "when you want the baby" (GB122). There was agreement that a pregnancy could become "wanted", despite being unplanned or unintended. It was also equated by some with choosing to continue the pregnancy, rather than opt for an abortion. However, there was also some criticism of the term; some women feeling that it was a weak or emotional term. Similarly, some women believed it could be difficult to apply the term "wanted" to a pregnancy as there could be simultaneous feelings of "wanted" and "unwanted"; it was possible to want a pregnancy but not want it now or with this partner. A minority of women understood "wanted" to be the same as planned and intended, or the direct consequence of planned and intended.

The term "unwanted" produced the strongest emotional reaction and the most disagreement among women in the study. Some women saw it as a harsh, judgmental term, associating it with children rather than pregnancy, e.g.:

> "...because it's like wanted child or unwanted child. Unwanted child, it means .. it reminds me of something like the homeless children or orphans [....] It's like you are .. you are deserting your children" (GB103, age 27, abortion).

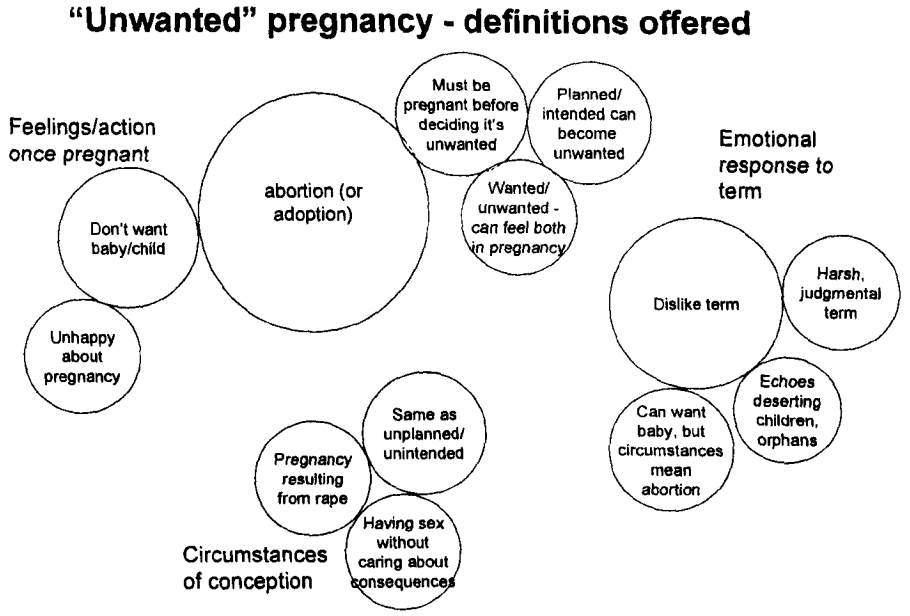
This sort of emotional response came both from women who were continuing their pregnancies and from women terminating them.

In many instances, the term "unwanted" was associated with an outcome of abortion or, more rarely, adoption (figure 5.3). There was an acceptance by a number of women that "unwanted" was a term that only came into play once the pregnancy had occurred, and could be associated with being unhappy about the pregnancy or not wanting the baby. A few women said it was possible for a planned/intended pregnancy to become unwanted (in contrast to the much greater acceptance that an unplanned/unintended pregnancy could become wanted).

Summary

Overall, there was no uniform agreement about the definition of any term, although there

Figure 5.3: Definitions of an "unwanted" pregnancy



seemed to be most agreement about the term "planned". There was less agreement about the terms "unplanned", "unintended" and "intended", and least agreement about the terms "wanted" and "unwanted". On the basis of this evidence, since women interpret and understand these terms in a variety of ways, using these terms alone to discover the circumstances of women's pregnancies would be inadvisable.

Fischers et al's study

Only one other study has attempted to explore women's concepts of the above terms. The study was carried out in 1996 in Salt Lake City, Utah with 18 pregnant women (13 continuing pregnancy, five about to undergo abortion) using depth interviews (Fischer et al, 1999). They similarly found that women understood the terms in a variety of ways and that "no two women placed the exact same value on factors associated with characterizing a pregnancy as intended, planned, or wanted" (1999, p.119). In the detail of the definitions offered by women, there were similarities and differences between the two studies - the

main difference being that in this study women's definitions were more diverse. Also, Fischer et al did not report any criticism of the terms "wanted" and "unwanted" and stated that women equated these terms with continuing or terminating the pregnancy. The findings of this study are clearly different in this respect. This may be due to methodology, sample size, or simply the different views of women in Salt Lake City. However, the broad similarity - that women define these terms in a variety of ways - has obvious implications for survey methodology.

How women applied the terms when asked to do so

When invited to apply the terms "planned", "unplanned", "intended", "unintended", "wanted", or "unwanted" to their pregnancies at the end of the interview, 43 women did so. In summary, 11 applied "planned", eight applied "intended", 29 applied "unplanned", 14 applied "unintended", 15 applied "wanted" and eight applied "unwanted". The way in which women applied the terms usually related to the way in which they had previously defined them (although not always, as some women subtly changed their definitions at this point), and related to personal preference for terms. For instance, a woman might have defined two terms as interchangeable (e.g. planned and intended) but still chose to apply one term ahead of another, e.g.:

> "I think maybe unintended would be.....I like...unplanned doesn't bother me at all but unintended, for me, would be the one that I'd pick" (GB127, age 26, abortion).

Generally, the terms "planned" and "unplanned" were preferred to "intended" and "unintended".

Three women felt that none of the terms satisfactorily described the circumstances of their pregnancies, and their accounts of the circumstances of their pregnancies reflected much ambivalence, e.g.

> "I couldn't say ... I couldn't use as strong a term as planned, in that I didn't 'unplan' a pregnancy, but I don't know if I went as far as to actively plan

one .... but having said that, I know enough about contraception to know that if I definitely didn't want to get pregnant I would have been using a ..... or at least been consistently using contraception, rather than inconsistently using it" (GB106, age 30, continuing pregnancy)

" ... I mean it was on one level I supp... I wanted and I would like to have another child ....I'd like her to have a sibling. I have two sisters.... I know what she's going to miss out on, but I wouldn't say planned or intended" (KW101, age 43, continuing pregnancy/miscarriage).

Women who applied the terms "planned" and "intended"

Of the 11 women who applied the term "planned" to their pregnancies, all were continuing their pregnancies, all were married, most were in their 30s and 40s, and most were educated to degree level. Looking at the main body of their interviews (i.e. all the conversation before the topic on terms was introduced), it emerged that these women had four key criteria in common:

1) they all stated they had had a clear intention to become pregnant;

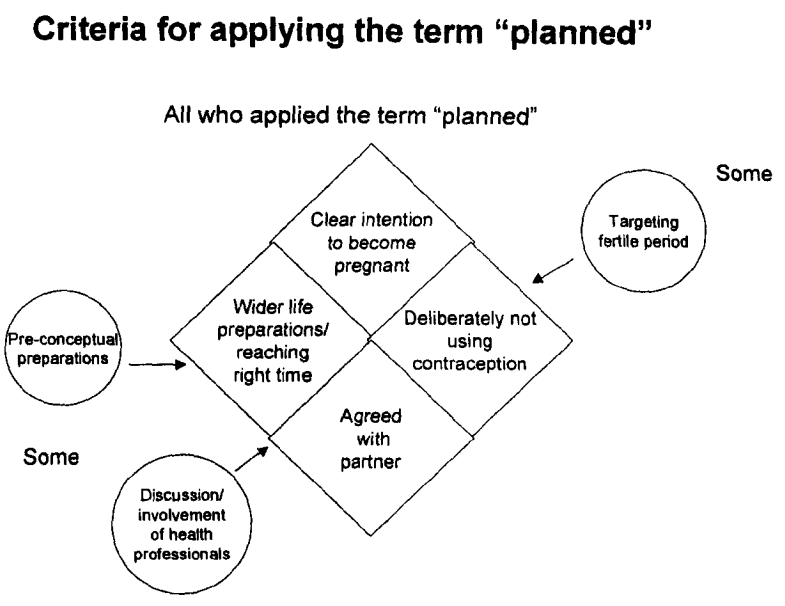
2) they had not used contraception in order to become pregnant;

3) they had all discussed and agreed with their partners that they would try to conceive;

4) they had all made wider lifestyle preparations/reached the right time in their life (e.g. got married, got the right job/house etc).

Some women reported other actions (e.g. taking folic acid), but these were minority activities (figure 5.4).

Figure 5.4: Criteria for applying the term "planned"



Of the 11 women who applied the term "planned", seven also applied the term "intended". One woman questioned the appropriateness of the term "intended" even though she applied it:

> "...we planned a baby in so much as we used ovulation prediction kits which was as much planning as one could do. And we intended .... almost ... I suppose it was our intention that ... intention almost implies that there will be an outcome, so that probably that is the lesser term I would use in a way, because we didn't ..... intention .. you know, because we never really expected to be able get pregnant"(GB108, age 40, continuing pregnancy).

Another woman described her pregnancy as "intended" but not as "planned":

> "I think it would be intended. I intend, you know, but it's not like I've planned it because I'm thinking of getting married in November and I don't want to be that big by then or, you know, just have a baby at that time and it was intended but it wasn't planned" (GB111, age 30, continuing pregnancy).

By looking at the information this woman gave across her whole interview, it was possible to see that she fitted three, but not all four, of the key criteria outlined above. She did not have the same level of discussion and agreement with her partner about trying to conceive as had the women who described their pregnancies as "planned". She and her partner had a loose background agreement that it would be acceptable to have children in the relationship, but the actual decision of when to get pregnant was left to the woman. She only told her partner about the (potential) pregnancy once she suspected she was pregnant, nearly a year after beginning to try to conceive.

Comparing the explanations offered for a "planned" pregnancy with the key criteria for applying the term shows many similarities and some differences. In the explanations offered for "planned" (figure 5.1), discussion/agreement with partner, conscious decision making, and taking a longer view are major criteria; they become the key criteria for applying the term, along with deliberate non-use of contraception (figure 5.4). Similarly, targeting fertile periods and pre-conceptual preparations are minor criteria and they do not become key criteria for applying the term. Planning without a partner, which was seen as a less usual, but possible, situation in the offered definitions, was not borne out when applying the term; planning with a partner was a key criterion (figure 5.4). In fact, when applying the term "planned", women seem to have interpreted the (self-imposed) criteria required for "planning" very strictly. Intending to become pregnant and stopping contraception in order to become pregnant were not, in themselves, sufficient criteria for applying the term "planned"; agreement with a partner and wider life preparations/reaching the right time were also necessary. Even when women met all four criteria, an element of doubt about applying the term "planned" could arise if events were not perceived as being fully under human control (by choice or otherwise). For example, the following two women both applied the term "planned" to their pregnancies (and therefore met the four key criteria), yet felt the need to debate and defend the "planned" status of their pregnancies:

> "I had a boss, who him and his wife - and he used to tell us this, whether it was true or not I don't know - um, but him and his wife planned their pregnancies so that the child would be born at a certain time in the year - this is the honest truth - so that they could get into a sort of school term. And all three children were planned - PLANNED - like that. And I think 'Oh God no!'. We're just nothing like that. Ours was just, 'Oh yeah, once

> we've moved house we'll have a baby'. That ... you know, that was about as, you know, and we won't use contraception and see how it goes. That was about as planned as we managed to get" (RK101, age 35, continuing pregnancy).
>
> [was being investigated for fertility problems] "...even though I didn't know I was pregnant for three months I would still say our pregnancy was planned ... because when I say to people I didn't know for three months, 'oh it wasn't planned?' I said 'well yes it was planned (laughs) but not in the way that most people plan it'" (GB115, age 27, continuing pregnancy).

It is worth noting that in women's descriptions, "planning" was sometimes associated with producing a birth at a specific time (e.g. see extracts GB111, GB113, GB115, GB129). This presentation was not consistent throughout individual interviews or across interviewees, nor was it apparent in women's offered definitions (figure 5.1), but was something which some women moved in and out of in their descriptions. This consideration may indicate a latent criterion of planning which, although not widely accepted by women, may at times influence their interpretation of the term. Interestingly, a similar hesitancy about the term "plan" can be found in Fisher's oral history testimony of contraceptive use in Britain between 1925 and 1950:

> "... even those who did make such decisions about when to start a family were adamant that 'planning' was not an appropriate term to describe their behavior. Jack 'decided we'd like a family' but did not plan, 'not as the word mean, plan, no, I mean, we tried to have a child and then, well the family just happened, you know, just happened along'" (Fisher, 2000, p.300).

The way in which women applied the term "intended" to their pregnancies was largely in line with the offered definition (see previously) in that most women applied the term in the same way as "planned" and one did not. Overall, the term "intended" was not the term of choice.

Women who applied the terms "unplanned" and "unintended"

Of the 29 women who applied the term "unplanned", 13 also applied the term "unintended". One woman applied the term "unintended" but not "unplanned"; she said that

although she understood the two words to mean the same thing she felt "unintended" was a "nicer" term. Of the 30 women who applied one or both of the terms, 13 were continuing and 17 were terminating their pregnancies, their ages ranged from 16 to 42, and they included all categories of marital/partnership status. Looking at the main body of their interviews (i.e. all the conversation before the topic on terms was introduced), it was possible to see that the majority of women applying the terms had reported that they had not intended or had not wanted to become pregnant. This bore no relationship to their contraceptive situation (i.e. the whole range of contraceptive users and non-users were included) or, linked to this, to women's perceptions of contraceptive risk taking. There was, however, one interesting case of a 25 year old woman who reported that she had intended to become pregnant, but defined her pregnancy as "unplanned". She was clear that her intention had been to get pregnant, she had discussed and agreed the decision to try to conceive with her husband, and had deliberately stopped contraception (three of the four key criteria of women who applied the term "planned"). At one point in the main body of her interview (i.e. before the topic 11) she even uses the word "planning":

> "Well I kept sort of checking [i.e. pregnancy tests] because I thought 'um', well I kept checking every couple of weeks, I don't know why. We had sort of thought about it. And I guess once you make .. people say 'Oh, had you planned it?'. And I said 'Well, we'd thought about it'. I guess once you start thinking about it, then you are planning it, aren't you, really" (GB113, age 25, continuing pregnancy).

However, later when asked to apply the terms she defines the pregnancy as "unplanned" because she felt she did not fit the strict criteria of "planning":

> "[planned is] when you make a conscious effort and you sit down and you say, 'OK we're going to plan to work it in with my cycle and then we're going to do that, and we're going to move into the house', and just forward planning I think. Unplanned is when you haven't really planned about it, you haven't done that, you haven't sat down and said 'OK, this, this and I'll put this in my schedule', but you still ... still thought about it. It's still in the back of your mind, and I would call ours unplanned ... in the sense that you've thought about it, and if it happens it happens and it's good, if it doesn't happen ..... that's how I would separate them (GB113, age 25, continuing pregnancy).

By looking at the information this woman gave across her whole interview, it was possible

to see that she differed from those who defined their pregnancies as "planned" in that she and her husband had taken action so that she would become pregnant, but her not becoming pregnant was an acceptable outcome for them. Also, they had not made wider life preparations/reached the right time in the same way as other couples; the pregnancy, in fact, seemed to disrupt their prior plans for living and working in England.

The way in which women applied the terms "unplanned" or "unintended" was in line with their offered definitions (see earlier), i.e. the woman's intention/desire not to become pregnant was the prime criterion for applying either of the terms, and did not necessarily relate to contraceptive behaviour. As with "planned" and "intended", "unplanned" was generally favoured ahead of "unintended". In the previously offered definition of "unplanned", there was a minority view that an "unplanned" pregnancy could include some degree of desire or acceptance of a pregnancy and this was borne out in the applied definitions by one woman applying the term "unplanned" yet having reported intending to become pregnant.

Women who applied the terms "wanted" and "unwanted" to their pregnancies

Of the 15 women who applied the term "wanted", all were continuing their pregnancies. Six of these women also described their pregnancies as "planned" and nine as "unplanned" or "unintended". Three women, including one who described her pregnancy as "planned", described how it took them some time before they felt they could describe their pregnancies as "wanted". Women who applied the term varied in age and marital/relationship status. Overall, "wanted" was not a greatly favoured term by the women, but the way in which it was applied was close to the definition previously offered by them (see earlier).

Only eight women applied the term "unwanted" to their pregnancies, some of whom did so reservedly. All eight women were terminating their pregnancies. They were aged from 19 to 42, five were single, two were divorced or separated, and one was cohabiting. It is notable that 11 of the 19 women who were terminating their pregnancies chose *not* to apply the term "unwanted". The quotes below illustrate women's reasoning for not doing so:

> "I think the 'unwanted' one is a bit .. I .. I don't like it that much because a lot of the time it's not that I don't want the baby, it's that I can't have it ... well not 'can't', that's another word I should put in, but it's not within my means to have it, and I think it's for the baby's best. But I think 'unwanted' .. it's not that I don't want it at all. I love it just as much because, you know, if I could have it, and I would love to be able to have it, so I think 'unwanted' it a bit of a kind of harsh word in my head." (GB119, age 19, abortion).

> "I've never met a woman, and I've been on wards where they do terminations [in professional capacity], that have ever gone in and has said 'I don't want this child'. I think .. well I guess there are occasionally, but for most women it is a real decision and even if it's only in your own head, and I don't think anyone wants to get rid of the child. So I think that's a really negative .. well it's a negative situation but it has a very .. it puts guilt on someone" (GB127, age 26, abortion).

On the whole, the way in which women applied the term "unwanted" was much like the offered definition (figure 5.3). Women's reluctance to apply the term "unwanted" is interesting in light of the way in which the term "unwanted" is often used as a euphemism for pregnancies ending in abortion in the medical literature (e.g. Smith, 1990; Sulak and Haney, 1993).

Reflections on women's attitudes to pregnancy planning

The U.S. study by Moos et al (1997) and the recent British FPA study (Family Planning Association, 1999) suggested that lower income women were less likely to plan or wish to plan their pregnancies. Moos et al went so far as to say that even the concept of a "planned" pregnancy was not meaningful some lower socio-economic group women. Whilst these data generally support the hypothesis that lower income women are less likely to plan their pregnancies, they suggest a more complex picture. The women in this study who had "planned" pregnancies did, it is true, tend to be married, older and more highly educated, but equally there were some older, more highly educated women in the sample with pregnancies which were not "planned". Also, it was not possible to neatly classify women as planners and non-planners in terms of their pregnancy histories. Of the 11 women who currently had "planned" pregnancies, two had previous pregnancies which they described

as "unplanned" and ended in abortion - one woman when she was aged 18 and single, the other when she was aged 30 and married. Of the other 37 women in the study, sixteen had previously been pregnant, four of them describing one or more of their previous pregnancies as "planned".

"Planning" behaviour in relation to pregnancy was broadly understood by all women in the study (unlike Moos et al, 1997) and all were able to offer a definition of a "planned" pregnancy when asked to do so. Only two women (both young white working class women) actually indicated an open resistance to pregnancy "planning". One described it as "too clinical" (GB114) and the other wanted the pregnancy to be a surprise. However, this attitude is not entirely consistent because both indicated there were circumstances in which they might engage in "planning" behaviour, as the following extract from one of the women (discussing the offered terms) demonstrates:

> R: I'd never plan a pregnancy. Even if I was older, I'd like it to be a surprise.
>
> GB: Oh right.
>
> R: ...To me. I'm not going to sit there and say 'Come on let's try for a baby'. I...I don't ...It doesn't really appeal to me that sort of .. [...] I don't want to come in and say 'Oh...my temperature's fine, come on we have to go now 'cause I....it's the most chance I have to get pregnant'. I just want it like...one day so you go to the clinic and they say - 'Oh you're pregnant'. It's like a surprise to me, instead of me planning it and then I go to the clinic and say 'Oh I knew that anyway'. It's just, it's not a surprise to me.
>
> [*Later in interview:*]
> GB: Ok....there's just one thing I want to go back to. Thinking about the future and having children in the future and...preferring not to plan a pregnancy...can you...how does that fit with like contraception, say you're on the pill or something....say you're married, or in the right relationship, and all the circumstances are right...you're on the pill...how does that happen then? *[earlier interviewee had indicated that she wanted to use contraception in future/not have another abortion and had described her ideal circumstances for pregnancy]*
>
> R: Well - if, if I was married and it was all the right circumstances and I was still on the pill and I knew that I wanted to get pregnant I would take myself off it....discuss it with my husband or my partner whoever, discuss it with

> them and say....like at the minute I do want a child but I'm not prepared to plan it but I will take myself off the pill, so that if it happens it happens and if it don't it don't. [...] I wouldn't set myself an exact date to get pregnant but say if I wanted to get pregnant and my ideal age was for next year I'd take myself off now so it could happen from anytime from here to next year" (GB129, age 17, abortion).

The resistance to planning expressed by these two young women may reflect fatalistic beliefs about health as found in previous studies (e.g. Pill and Stott, 1982, 1985) but the adoption of planning behaviour some of the time suggests that pregnancy planning is an available choice. *Not* planning may have particular advantages in certain contexts and needs further investigation.

Conclusions

The primary purpose of this chapter was to establish how women used and understood the terms "planned", "unplanned", "intended", "unintended", "wanted" and "unwanted". I found that the terms tended not to be used spontaneously in women's accounts of the circumstances of their pregnancies, suggesting that these are not truly 'emic' categories. When presented to the women, the terms were broadly understood but there was considerable variation in understanding. Women attached particular nuances of meaning to the terms which could change during the course of conversation and had preferences for particular terms that were not possible to predict. Most (but not all) women were able to apply the terms to their pregnancies and this revealed further variation in understanding. I was somewhat surprised to find that intending to become pregnant and stopping contraception were not sufficient, in themselves, for women to apply the term "planned" to their pregnancies; two additional criteria were also necessary (see figure 5.4). On this evidence, a survey question such as "Was your pregnancy planned?" is likely to elicit a positive response from only a proportion of women who actually had positive intentions of becoming pregnant. In contrast "unplanned", which was a widely applied term in this study, is likely to include both women with positive and negative intentions. For this reason, I recommend that relying on terms such as "planned" and "unplanned" in isolation, to collect information about pregnancy circumstances should be avoided.

My findings also raise questions relating to women's acceptance of the underlying concept of pregnancy planning. I found some evidence of resistance to pregnancy planning on the part of some women. Attitudes to pregnancy planning may be a fruitful line of future research, providing a backdrop against which to understand the outcome of reproductive health and family planning service provision.

Chapter 6: Women's intentions and contraceptive use

In the interviews, women talked coherently and at length about the circumstances in which they became pregnant. In this chapter, I describe the detail of the women's accounts with regard to their reported intentions and contraceptive use, concentrating on the aspects which had a bearing on why the pregnancies occurred. In describing the substantive detail of the women's accounts, I aim to convey the richness and complexity of their perspectives, document my reading of these data, and begin to provide the basis from which to develop a conceptual model.

Intentions around the time of conception

As women described the circumstances in which they became pregnant, and their thoughts and feelings about these circumstances, they revealed much about their intentions prior to pregnancy (the proviso being, of course, that women had not radically recast their thoughts in the interim). Information signifying intention usually emerged quite quickly (and spontaneously) and was reiterated throughout the interview, rather than being elicited through a direct question. For example, the following extract is from the opening minute of one interview:

> "I've been in London for ... coming up to 12 years now. Um, I'm 35, I'm an accountant. Jake and I have been together for, well... almost twelve years as well, 'cause we met just through friends after we both moved to London. Um, we got married here, in July 97. ... Um, and then decided we were going to move house. The plan was to move house, and ... and have a baby. Took us ages to get us moved house (laughter). And then ... we decided, then we decided right that's it, we're going to start trying, and it happened straight away" (RK101, age 35, continuing pregnancy).

Intentions or plans to become pregnant tended to be stated quite explicitly (as above) although usually in the context of explanations about contraception, feelings about pregnancy and/or comments on life plans. The intentions of women who did not have

positive intentions to become pregnant also became apparent through explanations about contraception, feelings about pregnancy and/or comments on life plans:

> "I was waiting for my period ... I was waiting for three weeks but it was ok, no problem. But I was really, really anxious because I was stopped my pills in February, and because I haven't got any more, so, but we be, we worry yeah. We tried to be careful you know. 'No it's not possible!' because it's seven years I take the pills. 'It can't be happening!', like that in the first week and I was waiting and I was waiting ... so I brought a pregnancy test" (GB118, age 22, abortion)

> "...me and my boyfriend had actually talked it through, even before, we said if I ever got pregnant at this age then we wouldn't be able to keep the child. Not because of financial reasons but because of .. that we're too young to have a child and we want to be in a situation to give our child everything a child needs" (GB130, age 16, abortion).

> "I'd just managed to lose all my weight after having a second child, so I was quite content being ... my new weight ... so I really had no plans to have ....um, well, I mean, we were, we were planning on having a third one .... but perhaps, maybe, another year down the line .... Ah ... And this one came as a bit of a surprise. I wasn't exactly thrilled" (RK102, age 31, continuing pregnancy).

On such data, from across the whole interview, I found that I was able to divide the women into three groups at an early stage of analysis:

1) Women who stated they had had a clear intention to become pregnant (13 women)

2) Women who did not report any positive intentions to become pregnant (the absence of intention) (31 women).

3) Women who reported some positive intentions, but these were equivocal (ambivalent/inconsistent intentions) (3 women)

Positive intentions

As a check on my early classification, I explored the concept of intention further. Firstly, I checked the dictionary definitions of "intend" and "plan" (summaries shown in table 6.1).

Table 6.1: Summary of dictionary definitions of "intend" and "plan"

Source	INTEND	PLAN
The Shorter Oxford English Dictionary on historical principles, 1933	Latin "intendere", to stretch forth or out - to have a purpose of design, to be minded; - to have in the mind as a fixed purpose - to mean (a thing) *to be* or *to do* something	A scheme of action, project, design; the way in which it is proposed to carry out some proceeding.
The New Shorter Oxford English Dictionary, 1993	Latin: intendere, to extend, direct, intend, promote - direct the mind to something to be done -be minded or resolved - have one's purpose (an action etc); plan to do, contemplate doing; - mean or refer to by one's words.	- arrange in advance (an action or proposed proceeding) - devise, contrive; - intend (on doing a thing) *colloquial.*
The Longman Dictionary of the English Language, 1984	Latin: "intendere", to stretch out, to purpose Middle French: "entendre", to purpose 1) to mean, signify 2a) to have in mind as a purpose or a goal 2b) to design for a specified use or future	- a method for achieving an end - an often customary method of doing something - a detailed formulation of a programme of action - a goal, aim

This confirmed the definitions to be broad and, to a large extent, overlapping, and not contradictory to our early ideas about the breadth of ways in which women could signify intention. Secondly, I checked the wider literature.

"Intentions" and "intentional action" (closely related but distinct concepts) have a long history of investigation in philosophy and psychology. In the 18th century, Hume outlined his "desire/belief" model of human action in which he argued that desire was needed to motivate our purposive (or intentional) actions, and belief was required to carry the action through (Shaw, 1998). Modern philosophical theories of action have also been based on the "desire/belief" model (e.g. Anscombe, 1957; Davidson, 1970). More recent philosophical theories of action have proposed a three-way model (desire/belief/intention) (e.g. Searle,

1983; Brand 1984; McCann, 1986). For example, McCann's definition of an intention demonstrates the distinct parts of the three way model:

> "...to have an intention is to be in a state which though it need not issue in action, goes beyond simply having a desire to achieve some end and a belief about how to do so. In themselves, desires and beliefs are not 'practical' in any strong sense; intentions are, for to have an intention is to be committed to act" (McCann, 1986: 251).

Table 6.2 shows the way in which the three-way model of intention fitted with the women whom I classified as expressing clear positive intentions. The first column, "intention", was as I primarily understood women's accounts. I interpreted "belief" as evidence in women's accounts that they believed that unprotected sex was likely to lead to pregnancy. All women did believe this, although three women who had fertility problems expressed caution about this belief, for example the following extract shows that the woman was quite clear that sex could lead to pregnancy, but was not particularly hopeful that it would:

> "We were using ovulation prediction kits, and, you know, I was getting to the point where I was feeling very envious of other people who were getting their second child and things. [...] So I was very keen to have a ... we were trying very hard to get pregnant. We had taken heart last year that I had got pregnant spontaneously. That was the one positive thing. We didn't really want to go through IVF again. We'd decided almost certainly we would just not bother with that, and if that meant we wouldn't have another, then we wouldn't. [...] We just didn't bother with contraception. I mean we just thought, 'it probably won't happen'" (GB108, age 40, continuing pregnancy).

Most of the women wanted to become pregnant and have a baby ("desire"), although occasionally there was some divergence between the women's personal desire for a baby (usually less strong) and her wishes as a result of being part of a couple, e.g.:

> "I think my husband just wants a baby, he just wants a baby. [...] Yeah, so I thought .. I mean, I'm going to have a baby anyway, so I might as well have it now. [...] Just get it over an ... but really I didn't, I didn't .. I thought it was too soon to have a child" (RK107, age 23, continuing pregnancy).

In such cases "desire" and subsequent "intention" are the product of agreement by the couple, a possibility that philosophers and psychologists are aware of, arguing that some

Table 6.2: Women who expressed positive intentions to become pregnant

Interviewee	**intention**	**belief that action will lead to outcome**	**desire**	**action**	**pregnancy**
	expressed positive intention to become pregnant?	*belief that unprotected sex was likely to lead to pregnancy?*	*wanted to become pregnant/ have a baby?*	*unprotected sex?*	*Continued or terminated?*
GB101	yes	yes	yes	yes	continued
GB102	yes	yes	yes	yes	continued
GB104	yes	yes	yes (some ambivalence)	yes	continued
GB105	yes	yes	yes	yes	continued
GB108	yes	yes (hoped)	yes	yes	continued
GB109	yes	yes (hoped)	yes	yes	continued
GB111	yes	yes	yes	yes	continued
GB113	yes	yes	yes (some ambivalence)	yes	continued
GB115	yes	yes (hoped)	yes	yes	continued
GB123	yes	yes	yes	yes	continued
RK101	yes	yes	yes	yes	continued
RK105	yes	yes	yes	yes	continued
RK107	yes	yes	yes (some ambivalence)	yes	continued

intentions are social in nature in that they may result as a consequence of social interaction (Malle and Knobe, 1997; Gibbs, 1999). As the final two columns of table 6.2 show, women's behaviour in terms of contraceptive use and the outcome of their pregnancies were congruent with their intentions, and were described as "intentional actions" in women's accounts.

Of the 13 women who expressed clear positive intentions, twelve were married and one was living with her partner in a long term relationship. Eight of the women were aged 30 or over, the remaining four in their 20s. All four women in their 20s were married, the youngest (age 23) from a very traditional Asian family.

No positive intentions to become pregnant (absence of intention)

Women who did not express any positive intentions were a large and diverse group. Their ages ranged from 15 to 41, and all categories of marital/relationship status were represented. The absence of positive intention to become pregnant was not necessarily the same thing as a positive intention *not* to become pregnant, although both positions were found in this group. There were many, often complex, reasons why pregnancies occurred to these women, a findings which will be discussed shortly.

Ambivalent or inconsistent intentions

There were three women who expressed some positive intentions, but these intentions were equivocal, always being balanced by other concerns and behaviour. For instance, interviewees KW101 and GB106 described their situations:

> "I wasn't intending....well...well...on one level I wasn't intending to be pregnant but I think it was a classic case of um...you know...I have a daughter who's two and a half... and I'd love her to have a brother or sister...so on one... on a sort of unconscious...subconscious level I think I ...kind of wanted to have...to have another one...but equally on a rational level I knew that age wise...and also because of my energy levels that it...it...it ... it was quite problematic really" (KW101, age 43, continuing pregnancy/miscarriage).

> "I suppose my .. I mean my feeling for quite a while is that I would like to have a child, but I suppose I hadn't actively taken the step to say I am definitely going to try and get pregnant, so I suppose it was sort of ... in some ways not doing much to avoid getting pregnant. [...] I suppose there were pros and cons on both sides. I don't think one side came out particularly stronger than the other" (GB106, age 30, continuing pregnancy).

Both interviewees were in stable relationships (GB106 was married, KW101 was about to marry her long term partner) in which they knew a pregnancy would be acceptable, and both expressed reservations about becoming pregnant alongside their desires for a child (GB106 was concerned about her career, KW101 was concerned about being a mother at age 42). Both women had exemplary contraceptive histories; their episodic contraceptive use coinciding with their ambivalent intentions. Interviewee KW101 also demonstrated further inconsistent behaviour: she went to her GP to get emergency contraception, but subsequently did not take it as she thought she might already be pregnant; she started taking folic acid around the time she began taking contraceptive risks, but also briefly considered the possibility of an abortion.

The third interviewee, KW103, was in a different situation but her account was similarly riven with conflicting comments. KW103 was 32, single (her most recent partner finished the relationship shortly after she announced she was pregnant), and unemployed. She had had five pregnancies, four or which ended in abortion and one which had been an ectopic pregnancy during which she had lost her fallopian tube. She was obviously traumatised by the experience of ectopic pregnancy and talked about being "butchered" and being "only half a woman" as a result of it. She explained that since the ectopic she had felt a need to prove her fertility to herself, and had two subsequent pregnancies through little use of contraception, both of which ended in abortion. She described the situation around her most recent pregnancy:

> "I think that I didn't really have any concrete intentions and think that my thoughts were, up to a certain extent, erratic around the time and I'm ... I think they were a little bit unreal and it's a little bit like you're choosing to think that you're not actually yourself and that your actions .. it's really difficult to explain, but I know that I had thoughts about getting pregnant (KW103, age 32, abortion).

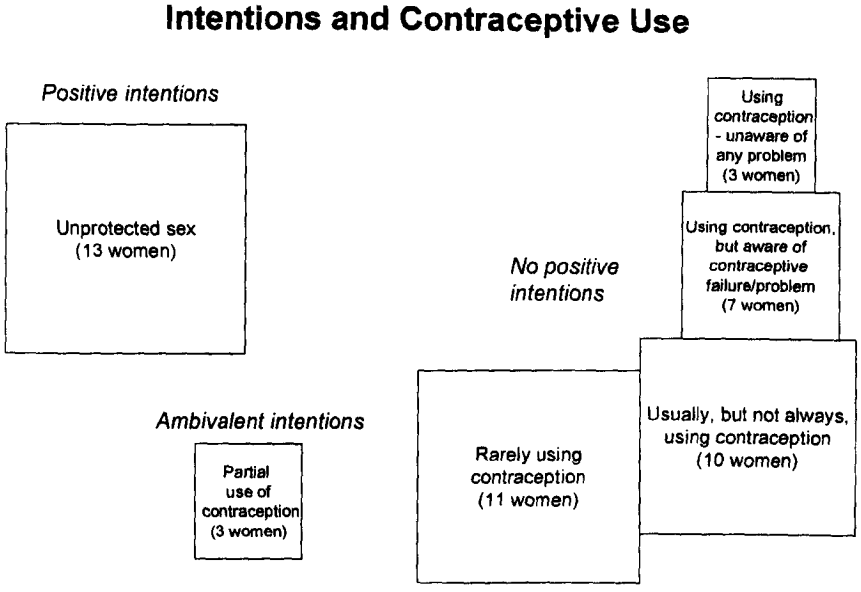
Luker (1975) in her study also encountered women who felt a need to test their fertility. Luker comments that the stigma of infertility is so strong that any woman who has a reason to suspect fertility problems had a powerful reason for wanting to find out.

Interestingly, both interviewees KW101 and KW103 referred to ideas about "unconscious" or "subconscious" motivation in their interviews. KW101 talked about her "unconscious" desire for a child, as opposed to her conscious ("rational") concern that she was too old to have another child, and interviewee KW103 attributed her two most recent pregnancies to her "unconscious" motivation to prove her fertility, as opposed to her conscious evaluation that she was not in a position to have a child. The fact that both women were able to articulate their conflicting motivations in an interview situation means that the motivations cannot, by definition, be seen as "unconscious" (i.e. outside awareness). However, Freudian and other psychological ideas (e.g. "denial") are current in popular culture, whether or not in their originally intended form, and may therefore be a convenient and acceptable way for individuals to explain incompatible motivations whilst maintaining a "rational" presentation of self. Luker's (1975) study of pregnancy risk taking also encountered women who talked about their "unconscious" motivations. Luker treats such statements as conscious motivations, albeit contributing to a private or tacit decision-making process.

Contraceptive use

Interviewees included a range of contraceptive users and non-users. As shown earlier, the women expressing clear positive intentions were non-users of contraception and the three women with ambivalent intentions were partial users of contraception. The contraceptive behaviour of both these groups was therefore congruent with their intentions. The largest group, women who expressed no positive intentions, included a whole range of users and non-users (figure 6.1). The interesting question, then, is why did these women become pregnant and/or use contraception in the manner that they did?

Figure 6.1: Intentions and contraceptive use



Why did women who expressed no positive intentions become pregnant?

I felt that the women in this group warranted close inspection. In aiming to understand why women in this group became pregnant and/or did not use contraception, I wished to distinguish between any positive motivations or desires for pregnancy that may have existed, and reasons which were to do with factors other than a positive orientation to pregnancy (i.e. which were purely about taking contraceptive risks). In the rest of this section, I outline the situations of individual women. For ease of comprehension, the women are grouped broadly according to their contraceptive use. Appendix 11 lists further details about the women.

No identifiable contraceptive problem

Three women reported using contraception consistently and experiencing no problems with

the method. All were condom users and were aged 17, 20 and 37. Two subsequently opted for abortion. The information across each of the women's interviews was consistent with their presentation of contraceptive failure. For example, all three underwent pregnancy tests as part of health investigations or treatments; one woman attended her GP for investigation of leaking breast milk, the other for absent periods, and the third was having routine pregnancy tests because of the toxicity of treatment she was undergoing for a benign brain tumour. The women's feelings and decisions about future contraception (all were moving to safer methods) also demonstrated a new and deep distrust of condoms, and their comments throughout their interviews conveyed their incredulity and search for explanations about what had happened. Overall, as far as KW and I could see, none of the women expressed any positive motivations or desires towards pregnancy which could have contributed to the failures of contraception that they experienced.

Method failure or other problems

Seven women were using contraception, but experienced failure of the method or other problems. The women's ages ranged from 16 to 33, and three subsequently opted for abortion. Six women were condom users: four reported the condom splitting and two the condom slipping off. Three of the condom users reported taking emergency contraception within the time limits. The three condom users who did not take emergency contraception did so for specific reasons. The first two seemed to make judgements that their risk of pregnancy was low, one because she thought semen had not escaped from the condom and the other on the basis of past experience. However, both women exhibited some disbelief in their own vulnerability to pregnancy:

> "I never imagined like, ok, if something happens, like if the condom splits or something. I mean, what I should have done would have been to have immediately gone to take the morning after pill. But I thought, 'no, it's not going to happen. I'll be ok' and then to my horror I discovered that it had.[...] because the condom had actually come off inside me and when we took it out I didn't think that anything had come out" (KW104, age 31, abortion).

> "...it was a condom split and I thought, I just thought it happened before but never, nothing happened. I just thought it can't never happen to me. [...] I

> didn't want to believe it, I really didn't. It was just .. I was shocked. I was like 'how could this happen to me?' It's like you never expect it to happen to you but I was .. I was .. I was .. sorry. I was really angry at myself. I know that when I .. when the condom split I should have gone to a clinic or something and get the seventy two hour pill. [...] it was like a spur of the moment thing for me as well but then it was like I had to go to college and all that. I was thinking how am I going to get to a clinic without my mum finding out because she usually finds out everything" (GB130, 16, abortion).

The latter quote also shows the woman was making a judgement about the difficulties in obtaining emergency contraception, the short term cost of her mother finding out outweighing the potential long term benefit.

The last condom user did not intend to become pregnant, but when she realised there was a possibility that she might conceive she was excited at the prospect. Unlike the previous women, she did not consider the use of emergency contraception. She describes her feelings:

> "...because what happened was that the condom failed and then when I counted it I thought 'I'm ovulating' and I just thought 'Ooh', you know. [...] I counted and I thought that my periods are so long that I could have been ovulating, and I was thinking ...well obviously I still have this burning desire to have a child and I knew the situation wasn't great, and I was thinking that I won't be lucky enough to get pregnant, but unlucky enough to get something (laughs), like a disease or something. So I was kind of a bit like 'ooh'" (KW102, age 31, continuing pregnancy).

This woman became pregnant with a very new partner. She had been with a previous partner, with whom she had tried to become pregnant for several years before discovering that he had a low sperm count. That relationship had eventually finished and her desires for motherhood had been put on hold. Her desires for motherhood were still on hold with this partner as it was early days in the relationship (and she was very clear that she had done nothing to bring about the contraceptive failure), but when there was a possibility that she might be pregnant, she did nothing to jeopardise it.

The seventh woman in the group was a pill user. She had taken three different pills over the course of the year. The first had caused her to vomit and the second made her "irritated".

She had gone to the family planning clinic to change to the third pill and, at the doctor's request, had a pregnancy test, which was negative. She then started the third pill, and three weeks later a friend, whom she had not seen in some time, asked her if she was pregnant. The friend was so insistent that she "looked pregnant" that she bought a pregnancy test, which turned out positive. She returned to the family planning clinic and found out she was over 11 weeks pregnant (the previous family planning clinic test being, with hindsight, a false negative). Interestingly, this interviewee never mentioned that she used any secondary methods of contraception, normally necessary when changing pills or if vomiting is within three hours of taking a pill. Her comments in the interview largely suggest that she thought she had adequate contraceptive cover, e.g.:

> "I was taking the pill. And I don't see why ... that's why I didn't really expect it, cause I thought like I'm taking the pill, so I thought what's happened? What the hell happened? But I did have problems with the pill, so I'm not really too surprised, because I'd been changing pills" (RK110, age 20, abortion).

Unfortunately, in the interview we never asked her if she was aware that secondary contraception might have been necessary.

Overall, only one woman (KW102) in this group expressed a positive desire for pregnancy. Her use of her main method of contraception (condom) had not been affected by this desire, but it had influenced her decision regarding emergency contraception once the initial method failure had taken place.

Usually, but not always, using contraception

Ten women reported using contraception most, but not all, of the time. Three were natural method users and seven were condom users. Their ages ranged from 22 to 41 and nine subsequently opted for abortion. The motivation of women seemed to be important to the success of contraceptive use, and there were various examples from women's accounts of factors which interfered with this motivation. For example, the following interviewee was recovering from a crack/cocaine addiction. She had been through rehabilitation in the last year, but admitted that there were still occasions when she would take drugs. Her pregnancy

resulted from the second episode of sex with her partner (a current drug user). She describes her attempt to ensure contraception was used:

> "I mean we, this is something that me and my partner discussed, because I said to him I'm not taking any form of contraception you know and I've always endorsed safe sex because of AIDS and STDs and I've always said 'look guys have to wear condoms' and he said to me, 'well I don't like wearing condoms, it's like having sex with a glove on'. How, how do these guys know this! (laughs) It just makes me wonder what they do at night! (laughs) But I mean I just said to him 'look this is something we're going to have to do, it's [unprotected sex] happened once and this is the last time it's going to happen. [...] I should really have laid down the law but because I was like, like I said, off my head. [...] Things got carried away" (GB125, age 22, abortion).

Although initially she was able to state what she wanted, with her judgement compromised and her partner's reluctance to use condoms, unprotected sex was the route of least resistance. Her partner also demonstrated a cavalier attitude towards her later when she told him she was pregnant. She says he was shocked and started drinking heavily, but after a little while he tried to have sex with her again, saying "you know you're pregnant, I can't get you pregnant twice". The fact that this woman had unprotected sex with her partner is interesting in light of findings from a Dutch survey of attitudes to HIV prevention. In this survey, 1000 adults were asked, "Suppose you have a new sex partner. Would you propose the use of condoms?", to which 95% responded "yes", and 75% stated that this would be an "easy task". However, when asked how they would respond if the partner objected, 50% of the men and 18% of the women who had initially said they would propose condom use reported that they would not insist (van Zessen and Sandfort, 1991, cited in Ingham and van Zessen, 1995).

The motivation of another interviewee (GB124) failed for different reasons. She had been with her partner for six years and they had a child together, but the relationship was foundering. Her criticism of him was that he was unreliable and immature. She had been away on a week's holiday without her partner and was depressed to return to the same situation she had been in before she left. She describes how the episode of unprotected sex took place because of her state of mind on her return:

"[I] thought 'oh my God, I'm back. Here we go, back to arguments and everything else' and wasn't earning. I'm not earning very much money. I was depressed. I was down. I wanted him out of the house and I was 'well what is it, well what's there for me? Why don't I just have lots and lots of babies'. I literally said that in my head and what happened, we made love, the condoms were in the bathroom, neither of us could be bothered and I said 'don't bother! I'll just have another child'. I literally said it as .. as a joke, you know, um ... 'forget the condoms'. Adam didn't think for one minute that I would get .. I didn't think that either. 'Leave it, we don't need it. Sod it, another child is another child. If I have a child, another child. What is my life?', you know, 'I'm not doing anything with my life'. Literally I remember having this conversation in my mind, and that was it, I got pregnant. He left two weeks later. My period didn't come" (GB124, age 31, abortion).

This interviewee had found motherhood with her first child, particularly the first year, extremely difficult. She claimed she was "not a natural mother", although this might have had much to do with the fact at the time she had been isolated and her partner unsupportive. For GB124, having another baby was akin to a punishment. By the time this interviewee's partner left, however, she had regained her equilibrium and was horrified to find herself pregnant. She opted for abortion and did not tell her ex-partner about the pregnancy.

Two older women (KW105 and KW106), neither of whom had ever been pregnant, judged their fertility to be lower because of their age. It seems that this judgement of lower fertility, combined with the infrequency of their sexual relationships, made them slightly less vigilant about contraceptive use. The extract below, from one of the women, demonstrates the subtle weighing of unquantifiable risks:

R: We did actually have some condoms and we were using condoms but it was a case of .. we didn't use a condom every single minute, you know what I mean. And then also we had an accident with one of the condoms and it was one of those .. I mean I have to say it was a really nice evening. I mean we really did, you know ... we were sort of having fun for about four hours.

[...]

Int: Did it cross your mind at any point that there was anything risky about it?

R: [firmly:] Never for one second. It .. oh no actually no it did at one point .. um .. I remember .. I remember I said something to him like, 'we've really

really got to make sure that we use a condom all the time because this is really quite silly'.

[...]

R: [6 months earlier, disrupted periods] "...there was something and I just thought 'well that's it now, I'm 42 and I must be going through the menopause' ..so .. so that was sort of like vaguely in the back of my mind.

Int: So that you weren't at peak fertility?

R: Yeah, .. I just thought .. there's just, there's no way anyway .. but I mean that didn't make me reckless because I was still being careful .. but it was just one of those things where I thought absolutely ... there's just no way this could happen" (KW106, age 42, abortion).

Perception of risk could also be affected by a woman's past experiences with a contraceptive method, particularly when using it in a less than optimum manner. One 27 year old interviewee (GB103) reported that she and her partner used condoms, but that he always penetrated first without a condom and occasionally did not use condoms if she was in her safe period. The couple had been together for five years and had used condoms in this manner all this time. As a pregnancy had not occurred (until now), they had felt that it was a safe way of using condoms. Hence they were using their past experiences as a way of judging the safety of their way of using condoms.

Another 26 year old woman (GB126) and her partner used condoms in a similar manner: beginning sex without the condom but ensuring a condom was used before ejaculation. Again, this method of use had been successful for this couple. However, the element of trust seemed to break down in this relationship. The woman said that by the time the pregnancy occurred the relationship was nearly over. She was dissatisfied with the fact that her partner did not work, seemed to have no friends, and was over-reliant on her. The final incident which finished the relationship was when they had sex and he did not withdraw to put on a condom, even though she asked him to stop. She believed he had ejaculated without protection on purpose and had known she was in the fertile part of her cycle. She said that a couple of months earlier he had told her he would like her to have a child and he would be happy to be a house-husband. She saw this as his way of tying her into the relationship and not having to work. In this case, the actions of the partner seemed entirely

coercive.

There were two cases of couples using the withdrawal method, the problem being in both cases that the partner did not withdraw. One woman (GB118) and her partner were French, both working in London. She had been using the pill until a few months previously when she ran out of supplies. She had a holiday in France planned and intended renewing her supply of the pill then. In the interim period, she and her partner had decided "to be careful", primarily using the withdrawal method. Unfortunately, on one occasion her partner did not withdraw. This interviewee did not blame her partner for this, rather saw the method (in hindsight) as unfeasible. The second couple exhibited more tension over issues of contraception (the husband was present in the interview most of the time). The couple were married, Muslim, of Pakistani origin (both born in Britain), and had two daughters. When discussing this pregnancy, the woman said that they had an agreement about having a third child at some point in time in the future, and the husband's comment was, "mistakes happen". When the husband was out of the room, the woman told the interviewer about their contraceptive method prior to this pregnancy:

> "No, we were .. it was a certain time period but, um ... we obviously practice coitus interuptus [makes a professional looking face as a gimmick when she says the term] [...] But the odd thing is that, um ... the odd thing is that ... I mean, I don't know how far I should go in the interview ... but he didn't realise that he'd ejaculated. And that is what we're ... that's what astounds me most, most. I mean, uh, we ... I mean we practised that after we had my uh ... well for three years before I actually fell pregnant with my um eldest daughter" (RK102, age 31, continuing pregnancy).

Later in the interview, when discussing the offered terms, there was a brief exchange between the husband and wife which suggests that their contraceptive aims might not have been entirely in tandem:

> *R:* Planned ... uh, I think both parties agreeing that you want the child. And unplanned, it came along without ...one's consent really. Um ...
>
> *R's husband:* [angrily:] Not consent, because there is consent in the act.
>
> *R:* Well, yeah, you're right there, but ..... then unplanned.... (RK102, age 31, continuing pregnancy).

Finally, in this group of women there was a woman (GB127) who used "natural family planning" methods, in this case the safe period. She had used this method for nine years in a detailed and consistent way, but reported a recent occasion when she and her partner had had sex at an unsafe time, just an instance when they got it wrong. She realised within a day of sex that she was ovulating and tried to get emergency contraception. However, she had just arrived in Ireland on holiday and was not able to get it. She comments:

> "I rang so many places [to get EC], and to be honest because we were also at a wedding and I was a bridesmaid (laughs). ... but to be honest I tried and I just .. and, you know, in the end I kind of thought 'oh look, it won't happen, I've tried'" (GB127, age 26, abortion).

As with interviewee GB130 earlier, the situational difficulties of obtaining emergency contraception made the short term costs outweigh the potential long term benefit, leaving the woman making the hopeful judgement that pregnancy would not happen.

Overall, the pregnancy of one interviewee (GB126) seemed to be the result of the partner's desire for a pregnancy and his coercive actions. It is also possible that the pregnancy of RK102 may have been brought about intentionally by the partner, although there is too little evidence to state this with any certainty.

Non users or occasional users of contraception

Finally, there was a set of 11 young women[1] (8 teenagers, 3 women in their 20s) who used little or no contraception in the months preceding conception. As previously, there were similarities and differences within this group of women.

The oldest woman (RK104) was 27 years old with three children. She had stopped using the pill because of the 1995 pill scare and then had three years without contraception. She then conceived but the pregnancy ended in miscarriage. After the miscarriage, she and her

---

1 The categorisation of one young woman, GB116, as an occasional user of contraception is primarily from her account in her follow up interview, which is slightly different from the account in her main interview. The difference is discussed fully in chapter 8.

partner decided they wanted a child (her previous children were not his), and she then conceived again and had a baby girl, who was about a year old at the time of the interview. After the birth of this child, the interviewee did not want to get pregnant for the time being, but could not agree a contraceptive method with her partner. He would not use condoms, but worried about the health implications of other methods of contraception for her:

> "David was having this disagreement that nothing was safe. 'Oh you're not going to use that, can't use that' or 'what if this happens? I'm only thinking of you'. And like 'if you take this, how are you going to be with this?' and like true. So (laughter) .. to this day, I'm still thinking what to use. It's a nightmare! [...] Other methods, like I was saying what about the coil? .. I think it's like a man's idea, looking at that wee metal thing, that's what he's thinking. So he wasn't too happy with that one. 'But I'm just thinking of you', and things. He didn't want me on the pill after what happened last time. I thought 'well what do you want me on?'" (RK104, age 27, abortion).

The result was that the woman did not use any method of contraception, hopefully relying on the fact it had taken her three years to conceive after the pill scare. She conceived again and terminated the pregnancy, and even when she was interviewed after the termination she had still not been able to agree a method of contraception with her partner.

The other two women in their 20s described quite fascinating, yet similar, situations to each other. Both had partners who were keen to have a child, and both women seem to have tacitly acquiesced to their partner's desire. Both women were unmarried, had been with their partners for about three years, and had stopped using the pill a few months previously (one on the advice of a doctor, and one because she felt she needed a break). Neither of them had subsequently used another method of contraception. Both became pregnant and continued their pregnancies. Both women were extremely consistent in their reports that they had not wanted to become pregnant, e.g.:

> *Int:* Does um, had you talked about children beforehand?
>
> *R:* Uh yes.
>
> *Int:* You had.
>
> *R:* Yeah, we got together, and I told him it wasn't such a good idea .. at the moment. Because we .. because the relationship wasn't too um, too strong,

> wasn't strong enough. And um, and because of his [Rastafarian] beliefs and things like that, so I was just thinking, 'oh, maybe not' (laughter). And wait and see, after, I mean in my thirties. And um .. but he wanted to have children straight .. to have children as soon as possible (RK106, age 26, continuing pregnancy).

The following extract from the other interviewee even shows the woman and her partner disagreeing, and the woman's maintenance of her interpretation of the circumstances:

> *R:* No, this pregnancy was very *unintended.*
>
> *R's boyfriend:* It wasn't for me.
>
> *R:* No, it wasn't for him. [boyfriend leaves room, goes upstairs] ... It wasn't for him. But yes, unintended, very. (laughs)
>
> *Int:* And what does unintended mean?
>
> *R:* Um ... that we wasn't planning it. If it was up to me, if it was my decision, I would have waited at least another two, maybe three years ... until I was properly settled. But it happened. It wasn't planned, but I'm happy (GB112, age 22, continuing pregnancy).

Although both women were very consistent in saying that they did not want to become pregnant, neither was able to explain satisfactorily why they had not used contraception when they knew very clearly that their partners wanted them to become pregnant. This finding has resonance with Williams' (1994) analysis of the 1988 National Survey of Family Growth around pregnancy planning and partner agreement. Of births in the last five years (excluding those which resulted from contraceptive failure), Williams found that 5.4% were reported (by women) as intended by the man rather than the woman, with the highest proportion (11%) among black women. Williams is puzzled by the finding and suggests that "women who report childbearing against their apparent interests may do so to please their partners and, perhaps, to solidify their relationship" (1994, p.172).

There were two younger interviewees (GB107, GB122) who were consistent throughout most of their interviews that they did not want to get pregnant when they did, yet there are moments in both interviews where it seems that they are more accepting of pregnancy than their initial presentation suggested, e.g.:

R: We wanted ... we wanted a child because I mean Lucy [11 month old child] isn't biologically my boyfriend's. She calls him daddy, and he takes her on as his own, but we wanted one of our own, but we weren't planning on having one quite yet. We were planning sort of when she was three or four and going to playschool. But it hasn't worked out that way.

[Later in interview:]
R: I think we just lapsed after what happened [first occasion of unprotected sex], because after that we didn't really bother. If we used one [condom], we used one, if we forgot, we forgot. We weren't very careful about it, but .. I knew I could take care of it anyway because I'd already had Lucy and was coping well with her" (GB107, age 17, continuing pregnancy).

R: Me and my boyfriend did talk about it [having a child], before I did fall pregnant, before I knew. We was going to wait a while but then it just happened.

[Later in the interview:]
R: It [unprotected sex] didn't really bother me because I was with him ... and it's just different to all, like our other relationships.

Int: Yes, yes, so would you say you quite, quite wanted to be pregnant, or is that not .. that too strong?

R: No, I did, we did want a baby but not just yet, like another couple of months or something but not just yet. So it didn't really make a difference because we wanted a baby, it just happened sooner than we thought it would" (GB122, age 17, continuing pregnancy).

Interestingly, both interviewees used the language of "planning" early on in the interviews, talking as if they were making rational decisions about the timing of their pregnancies or family building plans. However, these plans are not supported by their contraceptive behaviour: one couple (GB122) never used contraception, and the other (GB107) used condoms a couple of times and then stopped, the consequence being that both women became pregnant in the first three months of their relationships. The early presentation of "planning" behaviour may be, as Goffman (1956) describes, impression management, i.e. the most socially acceptable presentation being an adherence to planning behaviour. The extracts from later in the interview and the concordant contraceptive behaviour suggest that reliance on chance and an acceptance of pregnancy may be a more accurate representation

of the couples' behaviour. However, there is also another possible interpretation for interviewee GB107's latter statement. Interviewee GB107 was with a partner over ten years older than herself, and from a number of things she said during the interview, there seemed to be quite a power imbalance between them. I suspected that she had little control over their contraceptive use and that her statement about being able to cope with another pregnancy may have been a way of presenting herself as having some control over her life (i.e. this pregnancy did not happen entirely without her acceptance). In contrast, GB122's statements seemed to be very much in accord with the rest of her interview. She was quite limited in her ability to discuss abstract ideas or herself and the logical mismatch between wishing to delay a pregnancy and not using contraception was congruent with her account as a whole.

Two other studies have also found some teenage women to be relatively passive in their orientation to pregnancy. Finlay found that a minority of his 62 interviewees said "that they wanted at some point in their lives and that they were 'not bothered' when" (1996, p.85) and Phoenix said that 20 of the 79 teenage mothers in her study "did not mind if they conceived or not" (1991, p.60).

The remaining young women in the study did not display the same passivity towards pregnancy. They were negatively oriented towards pregnancy, yet showed a tremendous ability to be disjointed from considerations about the risk of pregnancy. For example, three interviewees simply stated that they never thought about the risks, e.g.:

> *Int:* Did you feel like, the morning after, you know .. oh I haven't used a condom, this is a bit of a problem, or did you just not think about it again?
>
> *R:* I didn't really think about it (RK108, age 17, continuing pregnancy).

> *R:* You don't really think about it at the time" [i.e. about risk of unprotected sex]
>
> *Int:* It wasn't a worry.
>
> *R:* No, you don't think anything will come of it either (GB116, age 16,

continuing pregnancy).

> "I never think I get pregnant, and when I get pregnant, I surprised because I never think about it" (GB117, age 15, continuing pregnancy).

The main concern of the last interviewee (GB117) was that her mother would find out she was sexually active and therefore did not wish to use contraception in case she would be found out. This, and her lack of belief about likelihood of pregnancy, meant that she became pregnant at the age of 15. Phoenix (1991), also reported that 14 of the 79 teenage mothers in her study had not thought about the possible risks of pregnancy before they became pregnant.

Two further interviewees also seemed to spend little time considering the risks, however they both also seemed to have made judgements about their invulnerability to pregnancy on the basis of their past experience of contraceptive risks, the extent to which the latter interviewee was even beginning to question her fertility (and may possibly have been testing it):

> *Int:* Did you ever ... in this period, did you worry at all about pregnancy ... or not worry, but did the risk of pregnancy ... did you ever think about that at all?
>
> *R:* Um .... yeah ..... but I've had ... I mean I've had pregnancy scares before and I've missed periods .... and .. and .. you know, it come back negative.
>
> *Int:* Yes.
>
> *R:* So I've ... never thought about it at all (GB131, age 19, abortion).

> "But it was really funny because when I was going out with my boyfriend for a year we didn't use nothing .. at all ..... And I never, ever ... And I was thinking to myself in a way .. there must be something wrong with .. because like other .. when you hear about girls who do just one night and that's it, they're pregnant. There's me for a whole year and it .. I mean, it wasn't like one year at a specific time, it was all different times every year .. of the day. It was like I missed it [pregnancy] all the time .. It's just .. I know, but it was really weird. And there's me thinking one of us couldn't have kids or something, you know ... were just getting paranoid. So that's

> why when I didn't use nothing I thought, 'Oh it'll be alright'" (GB129, age 17, abortion).

The final woman in this group was a 19 year old who had been with her boyfriend for two years in, what seemed to be, a very happy relationship. She had been on the pill but was having erratic periods. When she experienced the symptoms of a pulmonary embolism she had to stop the pill immediately. The pulmonary embolism turned out to be a heart problem, for which she was receiving treatment, and she did not restart the pill. She and her partner did not like condoms, and they consequently had four months of unprotected sex. As she described herself at this time, the risk of pregnancy seemed to be out of her orbit of comprehension. She did not recognise the (obvious in hindsight) symptoms of pregnancy and only went for a pregnancy test at her boyfriend's insistence. Once the pregnancy was confirmed they quickly opted for abortion, feeling that they were too young to have a child and that their material circumstances were inadequate. In the interview, she was critical about their risk-taking and searched for explanations:

> "We were being extremely careless .... Basically we pushed our luck really, because with the amounts of mistakes we did have, I was surprised I hadn't got pregnant before to be honest, that's why I feel so guilty. [...] I mean I'm not that kind of person to go and do something like that [i.e. take contraceptive risks]. I think it was kind of the stability of the relationship that made me loosen up a lot more and kind of thing, where you know a baby with this person, it isn't ... it's what I want in the end but I didn't think it would happen that soon. ... I'm still a kid at the end of the day. I've still got to grow up before I have a baby" (GB119, age 19, abortion).

The idea that the security of the relationship made her more likely to take contraceptive risks was a post-hoc rationalisation. Although plausible (and quite likely), it is impossible to say how much of a reason this was for the risk-taking at the time.

Overall, there seemed to be possible positive reasons, motivations or desires for pregnancy in five women's accounts in this group. Firstly, the partners of RK106 and GB112 had clear desires for pregnancy and seemed highly influential in bringing about the pregnancies (even though neither woman ever explicitly acknowledged this). Secondly, two young women (GB122 and GB107) revealed at moments in their interviews that they were quite accepting of pregnancy, in contrast to their overall presentations of not wanting to become pregnant

when they did. (Alternatively, there may have been an influence of the partner in the case of GB107, but there is too little evidence to be certain.) Finally, one interviewee (GB119) briefly suggested at one point in her interview that the stability of her relationship may have positively affected her feelings about pregnancy, even though neither she nor her partner wanted a child at this time.

Discussion

Women became pregnant in the absence of positive intentions to do so for a variety of reasons. I was most interested in any positive motivations or desires for pregnancy that might have led to conception because of their relevance to a potential measure of pregnancy planning/intention. In a small proportion of women's accounts, such positive motivations or desires indeed seemed to be present, tending either to be a desire for (or acceptance of) pregnancy on the part of the woman or a desire for pregnancy on the part of the woman's partner. Although I was not surprised that women's desires or motivations towards pregnancy could play a role in bringing about a conception, I was somewhat surprised at the influence of partners who desired pregnancy. In one woman's account (GB126) the partner seemed to take direct action to bring about the pregnancy, and in two women's accounts (GB112, RK106) the partners were highly influential. There is also evidence to suggest that the partners of two more women (RK102, GB107) may had active desires for pregnancy, although it is less clear in these cases. That couples disagree on fertility aims is not surprising; previous studies of married couples have shown disagreement over fertility aims in a proportion of couples (Coombs and Fernandez, 1978; Fried and Udry, 1979; Beckman, 1984; Thomson et al, 1990; Miller and Pasta, 1996), and that this disagreement can affect fertility outcomes (Beckman, 1984; Thomson et al, 1990). However, the mechanisms by which disagreements translate into fertility outcomes have been largely un-researched, and the relationships of unmarried couples have so far been ignored. These findings suggest a pattern of communication and influence in some couples which is a far cry from the idea of discussing and agreeing fertility goals and then behaving in a consistent and unified manner to achieve these goals.

In contrast to the small proportion of women's accounts in which positive motivations or

desires for pregnancy were present (on the part of the woman or her partner), the accounts of the majority of women who did not intend to become pregnant did not reveal any apparent positive motivations or desires for pregnancy. Rather, the reasons these women became pregnant were either outside their control (e.g. contraceptive failure) or factors other than a desire for pregnancy which led to contraceptive risk taking. The reasons for contraceptive risk taking were situational and specific, but could be broadly categorised as one or more of the following factors:

Firstly, women's perceptions of their risk of pregnancy could influence their judgements about contraception. The judgements of women in this group were, with the benefit of hindsight, generally an underestimate. In some cases, lowered estimates of risk were based on evidence from personal past experience (e.g. general non-use of contraception, a particular way of using a method, the lack of need for emergency contraception previously). Instead of feeling that their likelihood of pregnancy was now the same as or greater than the first time they took a contraceptive risk, women gained reassurance about their invulnerability to pregnancy. This was then a self perpetuating cycle until the occurrence of pregnancy proved otherwise. In other cases, lowered estimates of risk resulted from judgements about age (generally an assumption that older age meant lower fertility) or simply a belief, held particularly by some younger women, that pregnancy would not happen.

Secondly, the attitudes and actions of male partners, outside of a desire for pregnancy, could contribute to risk taking. For example, there was active resistance to condom use and/or other contraceptive methods on the part of a few men in the sample, and although this reduced the contraceptive options available to the couple, women were remarkably uncritical of partners with this stance. Also, no woman in this sample reported a male partner being concerned about the risks of unprotected sex/partial use of contraception and urging contraceptive use. The majority of men seemed to participate passively in risk taking.

Thirdly, the practical difficulties in obtaining a main method of contraception or emergency contraception or fears about the safety of certain methods of contraception could contribute

to non-use of contraception, usually by reducing the options available to a woman. Although a number of women made reference to such contraceptive issues in their accounts, these issues were usually present with one of the other factors above.

Interestingly, my findings with regard to women's assessment of their risk of pregnancy and partners' attitudes to contraception (outside of a desire for pregnancy) were very similar to those of Karen Luker in her study of women undergoing abortion in California over thirty years ago. She said of women estimating the risks of pregnancy:

> "First, there is a time-related aspect to risk-taking [...] the longer a risk-taker 'gets away with it' the more likely risk-taking is to continue. Second, as previously noted, the chances of getting pregnant are not known to the women themselves: they know that the likelihood is somewhere between zero and one, but they have no way of assessing the likelihood in any one exposure or over the long run. Third and last, immediate costs are always more costly than long-term costs, especially when no one knows how likely it is that the long-term costs will in fact become due" (Luker, 1975, p.88).

Luker's findings with regard to men and contraceptive risk taking are also similar:

> "...men's attitudes about risk-taking ranged from passive approval of risk-taking to active opposition to contraception. The most passive position on this continuum was represented by those men who were unaware of what contraception the woman was using, and who failed to ask if she was contraceptively protected. [...] More common, in the middle-range position, were men who were aware of the contraceptive risk-taking, but did not take any steps to end it or passively participated. [...] The least common position, but one taken frequently enough to be striking, was represented by the man who actively opposes the use of contraception" (Luker, 1975, pp.56-57).

However, the striking difference between my findings and Luker's with regard to male partners is that in this study women reported men with active desires for pregnancy and in Luker's they did not.

The extent to which male partners contributed to the occurrence of pregnancies (either by their active desire and actions, or by default through their resistance to contraception) in a group of women who did not intend to become pregnant, emphasises the influence men can have on sexual practices in heterosexual relationships. Holland et al (1992, 1998) have

explored the effect of gender roles on sexual negotiation in recent years. In an overtly feminist analysis, concentrating on younger women, they place sexual negotiation within the context of gendered social scripts:

> "The extent to which young heterosexual women define sex in terms of love, romance and relationships with men, leads to a widespread acceptance of sexual practices being defined in terms of men's needs. This gives men, whether wittingly or not, considerable power over young women's sexual practices" (Holland et al, 1992, p.142).

Holland et al further describe how young women's sexual behaviour can be within their control at two levels: intellectual and experiential. If sexual behaviour is not within the woman's control at the intellectual level (i.e. she is not able to define her own parameters of sexual behaviour/risk taking) then it cannot be at the experiential level. However, a problem they identified was that a number of young women have control at an intellectual level, yet face obstacles in putting their intellectual empowerment into practice:

> Young women who are empowered at this [intellectual] level may have sexual experiences which they are not able to control or resist, pushing them back into the transitional category where they have to struggle to gain ground that had been attained only at an intellectual level (Holland et al, 1992, p.148).

This finding is resonant with the accounts of a number of (older as well as younger) women in the study.

Conclusions

In this chapter, I described the detail of the women's accounts regarding their intentions and contraceptive use, concentrating on the aspects which had a bearing on why the pregnancies occurred. As expected, the intentions and contraceptive use of many women were congruent (women with positive intentions did not use contraception, women with ambivalent intentions partially used contraception, and a few women with negative intentions consistently used contraception). However, for a sizeable number of the women who did

not intend to become pregnant, contraceptive use was not congruent with their intentions (i.e. they were using contraception inconsistently or not at all). I found positive motivations or desires for pregnancy in the accounts of a small number of these women, tending either to be a desire for (or acceptance of) pregnancy on the part of the woman or, more unexpectedly and to a greater extent, a desire for pregnancy on the part of the woman's partner. In contrast, the failure to use contraception by women who did not intend to become pregnant seemed to be largely due to women's lowered perceptions of their risk of pregnancy, male partners' reluctance to use condoms or other contraceptive methods (outside of a desire for pregnancy), and (a contributory factor in some cases) women's fears about, or difficulties in obtaining, certain contraceptive methods.

Overall, the extent of the role of male partners in bringing about conceptions that women reported they did not intend was surprising. The attitudes and actions of male partners in communication about contraception and the agreement of fertility aims (both in terms of desire for pregnancy and opposition to contraception) warrant further research.

Chapter 7: Developing a conceptual model

In this chapter, I develop a conceptual model of pregnancy planning/intention status based on the aspects of women's accounts which provided an insight into their motivations towards pregnancy. In the first part of the chapter, I present these aspects of women's accounts - summarising material already discussed in chapter 6 and focussing on other relevant information from women's accounts so far not addressed. In the second part of the chapter I outline the resulting conceptual model and demonstrate how it fits with women's accounts when systematically checked back against the data. I also show women's characteristics in relation to the model.

Aspects of women's accounts revealing motivations toward pregnancy

In this section, I present the aspects of the interviews through which understanding about women's motivations with regard to pregnancy could be gained.

Intentions

As discussed in the last chapter, women's intentions with regard to pregnancy around the time they became pregnant were apparent in their accounts (of course, assuming that they had not recast their thoughts in the interim). Broadly, I was able to divide women into three groups: 1) those with positive intentions; 2) those with ambivalent intentions; and 3) those with no positive intentions. It must be noted, however, that the absence of a positive intention to become pregnant did not necessarily mean a positive intention *not* to become pregnant.

Contraceptive use

Also as described in the last chapter, the sample included the full range of contraceptive

users and non-users, ranging from little or no use, through inconsistent use, to contraceptive failure of both a main method and emergency contraception. In some women, contraceptive use was congruent with their intentions and in others it was not.

Desire for pregnancy/motherhood

As became apparent in the last chapter, desire for pregnancy and/or motherhood was present in a number of women. Most, but not all, women with positive intentions expressed a desire for pregnancy/motherhood. Desire for motherhood was also present in women with ambivalent intentions and at least one woman who did not express positive intentions.

Partner influences

As I discussed at various points in the last two chapters, male partners were influential in the situations that women became pregnant in a variety of ways. Firstly, of the 13 women who reported clear positive intentions to become pregnant, 12 had agreed this intention with their partner. Also, as described in chapter 5, partner agreement was one of the key criteria for women applying the term "planned" to their pregnancies - meaning that women did not apply the term "planned" if explicit partner agreement was not in place. When examining women's desires for pregnancy/motherhood (in chapter 6), it became apparent that women who had positive intentions to become pregnant did not always have a matching desire for pregnancy/motherhood; in these instances the woman's intention was the product of agreement with her partner. Hence, it is clear that male partners' views were a strong component of women's decisions to try to conceive.

Secondly, some male partners were influential in the situations leading to conception where women did not intend to become pregnant. A small number of women reported that their partners had desires for pregnancy. In one woman's account the partner seemed to take direct action to bring about the pregnancy, and in another it is quite likely that this happened. In two other accounts the partners seemed to be able to influence the women's contraceptive choices so that pregnancy occurred.

Personal circumstances/timing

One aspect which was a recurrent theme in women's accounts was their views on the timing of their pregnancy. This is of interest because previous survey questions (e.g. NSFG, Cartwright's) have asked women to make some assessment about whether the pregnancy was too soon, too late or wanted at all. Overall, the views expressed by women about timing in this study were different, and usually more complex.

In the latter half of the interview we asked women a broad question about their perceptions of the ideal time to have children (even though women had usually made a number of references to timing already in the interview). Women were able to answer this question, mostly denying that there was an absolute "ideal time". However, women then immediately continued to identify a set of circumstances which they believed could mean the time was right to have children, for example:

> *Int:* Is there an ideal time for women in general to have children, if there is an ideal time?
>
> *R:* There isn't an ideal .. I don't think there ever is an ideal time for anybody. But I think, I think the most ideal time is when you are in a relationship with somebody.
>
> *Int:* Right.
>
> *R:* That to me is the most ideal.
>
> *Int:* Right.
>
> *R:* I think second to that is having .. having a stable place to live, you know, either a flat that you know you're not going to be thrown out of tomorrow .. or whatever .. but I think first and foremost I think it's two people that are in a stable relationship (KW106, age 42, abortion).

Overall, most women said that a stable relationship with a partner was a necessary circumstance for it to be the "right" time, with some specifying that the relationship should be marital. Most women said a stable financial situation and a home were also ideal, although a few women said that if women waited until they could afford to have children

they would never have them. There was more disagreement about the age that was ideal for childbearing. Most felt that women should have their children when they were "not too young" and "not too old". What this meant in terms of ages varied: for middle class career women, late 20s was usually seen as the earliest that childbearing should begin. For women with less exacting careers or fewer qualifications, the early/mid 20s was more likely to be seen as "not too young". A minority of women had strong views in favour of women having their children young. Two Asian women felt that childbearing ideally should be completed by the age of 30, although they were explicit that children should be born within marriage. Three other interviewees (white, working class women) expressed similar views with regard to age (although not marriage). One interviewee expressed her views in the following way:

> "I do actually feel quite strongly about people who just keep their careers going and quite often don't have children till their late thirties, forties...I'm really so against that...It makes me angry 'cause it's fair enough you've got to live your own life but if you want to bring a child into the world, do it when your body is meant to be doing it...and you're not increasing chances of Downs Syndrome. But I think as far as social circumstances that it varies from person to person. People cope differently in different situations...so...but um...I think it's just not fair to leave it so late to start having children...on them or on yourself really 'cause you know you'll have a twenty year old and you'll be like collecting your pension, it's like, I don't think it's right personally" (GB114, age 20, continuing pregnancy).

Although most women had ideas about the ideal time or the ideal circumstances in which to have children, (in contrast to the quote above) most were quick not to condemn others, or themselves, for not managing to fit the ideal.

We then asked women how they thought their current pregnancies fitted with the "ideal" or "right" circumstances they had described. The pregnancies of women who had reported positive intentions to become pregnant generally fitted the "ideal" circumstances they described, but not necessarily in every detail. Women accepted circumstances which, on balance, were near enough to their ideal, e.g.:

> "Ideally I would like to be closer to my family .. um, but I .. I .. in.. in ... taking that aside then yes, it's .. it's ideal, ideal for me. ..... You know, I'd

like some more money but (laughs) but we always want that! I don't think .. er, I mean I always think, you hear so many people saying there's no right time to have a child because um, you always want a holiday or you want something um, but yet I think for Frank and I think this is the right time. We feel there's nothing else really we want to do ..um, that we needed to wait another year or so before we had a baby" (GB115, age 27, continuing pregnancy).

R: I just think you can always find a reason why it's not the right time.

Int: And do you feel this is the right time?

R: It is now, yeah, now I'm pregnant and it's going to happen, it feels like yeah, it's definitely the right time. Because ... yeah, we've been married for quite a while, we've had, you know, been quite lucky, and had opportunities to do things we've dong. Both got good jobs, a nice house, and we've got enough money to provide, and ... all our friends are having them, so it would be silly to sort of wait another five years when they've got kids all at school (GB104, age 33, continuing pregnancy).

For many women in the study who reported positive intentions, there was also a sense that the possibility of pregnancy had been part of their plans for some time, sometimes for years previously, and that these women did not just spontaneously reach the right time/circumstances but had, over time, gradually made preparations in their life. Notably, as shown in chapter 5, the idea of having made wider lifestyle preparations/reached the right time in life was a key criterion for women to applying the term "planned" to their pregnancies.

Bailey (1999), in her qualitative study about self-identity in middle class, older, first time mothers also found that the "right time" and the "right place" were criteria on which women made decisions about when to have a baby. In her study, though, the right time tended to be related the women's ages (older women becoming concerned about their declining fertility) and the right place related to concerns about being "physically settled" in a home, with a number of women becoming owner-occupiers before or during their pregnancy.

Among the women with positive intentions, only two had thought about timing in terms of

when the baby should be born, although this was still a reasonably loose idea:

> "I was always hoping that I would give birth during the summer holiday so that it didn't interfere with teaching. Um .. but it was not such a predominant idea. I mean I thought it would be nice practically, but I never actually thought that it would happen exactly like that way" (GB101, age 36, continuing pregnancy)

> "Well, as with the others we planned for a spring baby. So ... and as with the others we tried on holiday and were successful" (GB102, age 36, continuing pregnancy).

Trying to time the pregnancy, in terms of aiming for a specific month in which to give birth, was not a predominant goal for most women with positive intentions.

All the women who terminated their pregnancies (none of whom expressed unequivocal positive intentions) described their pregnancies as not fitting their ideal time/circumstances. Like women with positive intentions, they were able to distinguish between particular circumstances, e.g.:

> "I mean ... there's no way I could .. would like to do it without a man but having said that it's vaguely possible that if I had my own place that was paid for and if I had a job where I could take maternity leave I would actually have thought about it" (KW106, age 42, abortion).

> "Wrong man, wrong time" (GB126, age 26, abortion)

Interestingly, of the 12 women who expressed no positive intentions but continued their pregnancies, most described how their situations were far from ideal throughout the interview. However, when asked the direct question about how they thought their pregnancies fitted the "ideal" circumstances they had described, some offered reasons why they thought this was now the right time, e.g.:

> "We've timed it just right I think. [...] So even though it wasn't planned, it came on the right time ... right time ... which I'm quite glad of" (GB112, age 22, continuing pregnancy)

> "It's worked out really really nicely now, and I never could have seen that beforehand. Because if I was actually trained in something I wouldn't have

> wanted to take time out, because I would have been newly qualified or ... it would have been harder. So now it's great. Great (RK109, age 21, continuing pregnancy)
>
> "I feel like I ... now is a good time even though it wasn't planned and we were thrown into the deep end, so to speak. No it's a good time .... I'm in a stable relationship, work's fair enough and it ... it couldn't have happened at a better time" (GB114, age 20, continuing pregnancy).
>
> "I mean I believe in fate. I mean I really do think that it happened when it was supposed to happen. I remember I went to a psychic years ago and they said that I'd be 31 when I have a child, getting to know my partner .... we're so compatible, we're so alike, he's so laid back, and we're in a very similar job, and his ideas of bringing a child up are very similar and I just think 'God, this was meant to happen with this guy'" (KW102, age 31, continuing pregnancy).

These positive comments were momentary in the interview and did not outweigh the woman's overall stance about the way this pregnancy did not fit her "ideal" circumstances. These comments may have been part of the adjustment to the pregnancy and/or part of the desire not to present the forthcoming child as unwelcomed or unwanted in any way.

Only three women (all teenagers) specifically said that they felt they were having children too early in their lives. For two of them, this was only by a few years:

> "I mean I had her way too early. I would have been prepared to wait until I was about twenty and gone through college and things like that. I would have much preferred to do that but it didn't work out that way. But I've just coped as well as I can" (GB107, age 17, continuing pregnancy).
>
> "The age I am, I wouldn't advise it for someone my age. If anything I would say after 18 or 19. But I can't now (GB116, age 16, continuing pregnancy).

Overall, women made references to pregnancy timing in a variety of ways. Predominantly throughout the interview and in response to the question about how their pregnancies fitted their "ideal" time, women tended to see timing as a function of their circumstances, i.e. a good or bad time in terms of their relationship situation, material circumstances, stage in education or career, and age. Of women who had positive intentions to become pregnant, timing in terms of these life circumstances was related to the decision to try to conceive.

As shown in chapter 5, having made wider lifestyle preparations/reached the right time in life was a key criterion for applying the term "planned". Timing a pregnancy, in terms of aiming to give birth in a specific time period, was attempted by a couple of women, but was not a predominant goal for most women with positive intentions.

Pre-conceptual behaviours

A minority of women also reported carrying out pre-conceptual preparations (e.g. taking folic acid, seeking health advice) prior to their pregnancy. I was interested in pre-conceptual preparations because of their status as "intentional actions". An "intention" need not result in action, but an "intentional action" must be preceded by an intention. Although unprotected sex was often reported as an intentional action, across the sample as a whole there were many reasons as to why sex might be unprotected. In contrast, actions such as seeking fertility treatment, seeking health advice about pregnancy and taking folic acid were unambiguous indicators of pregnancy intention. Therefore I felt that finding out about actions such as these was potentially another means of assessing women's intentions with regard to pregnancy.

As expected, pre-conceptual preparations were strongly associated with positive intentions, with women variously taking folic acid, seeking health advice for pregnancy, seeking investigation/treatment for fertility problems, and using ovulation predictor kits. In all of these cases, these intentional actions corroborated already strong, coherent accounts of positive pregnancy intentions. However, in one women whom I classified as having ambivalent intentions, the fact that she started taking folic acid around the same time as she became inconsistent in her contraceptive use was a small, but interesting, piece of the jigsaw of evidence about her intentions.

Reactions to pregnancy

I was interested in whether or not women's reactions to finding out they were pregnant were in any way associated with the circumstances in which they had become pregnant,

particularly as "reactions to pregnancy" have been used in the past as a criteria for judging whether or not a pregnancy was planned (e.g. Cartwright, 1970, 1976, 1988; Fleissig, 1991; Harris and Campbell, 1999).

Women usually described the result of the pregnancy test(s) as being the key moment in the discovery of their pregnancy. The most common reaction reported by women was "shock", both by women who expressed positive and negative intentions. For example, women with positive intentions:

> "It was really strange, 'cause I felt.... I dunno, shocked, I think. And ... I really just wanted to cry, but not from ... not from sadness. It was just like 'Oh my God, this is such a big thing'. And ... yeah, so it was like ... it was complete shock I think" (RK101, age 35, continuing pregnancy).

> "Oh, I was quite shocked, initially, quite shocked, but delighted ... obviously" (GB102, age 36, continuing pregnancy).

> "I have to say I was rather shocked that I was pregnant. Really happy. Happily shocked" (GB109, age 42, continuing pregnancy).

Women who reported no positive intentions:

> "Shocked at first 'cause we were actually still using condoms and so I didn't think I could be. But...I was shocked, excited, scared, worried.....whole variety (GB114, age 20, continuing pregnancy).

> "I'd kind of gone into kind of numb shock, don't accept it and kind of think, 'oh it'll all be all right and maybe if I do something it will all go away'" (GB119, age 19, abortion).

Reactions other than "shock" were also expressed, but these were by a minority of women. Women's reactions could also bear very little relation to whether the pregnancy was ultimately continued or not. For example, the following three quotes are all from women did not express positive intentions. The first two quotes are from women who eventually terminated their pregnancies and the last is from a woman who continued:

> "Oh well, it's such a mixed feeling. I was so happy but at the same time...I was really happy, and so was Ken, because he's actually had an operation on one of his testicles and he was told that maybe he couldn't have children,

and so I mean it was all very ... mixed emotions. We were so excited and um ...and then excited and happy, to be honest, at first" (GB127, age 26, abortion).

"Well I had two feelings immediately...the two feelings were sheer panic and sort of fear at being pregnant.... and um ..I mean there was...there was a sort of feeling of like 'Wow I'm pregnant!' you know..." (KW106, age 42, abortion).

"[reaction was:] 'I don't want a baby'. But I didn't think of it as a baby, I thought of it as just something to get rid of, you know" (GB110, age 17, continuing pregnancy).

Overall, "reactions to pregnancy" was a very poor indicator of circumstances leading to conception (and also decisions made afterwards).

Other interview topics

A number of other topics were discussed in the interviews, e.g. pregnancy testing, decisions about pregnancy outcome, experience of antenatal or termination of pregnancy services, ideas about future childbearing, perception of the foetus in terms of cells/baby/child. Although women's thoughts on these topics sometimes related to their circumstances of pregnancy, no new insights about their motivations towards pregnancy or the circumstances in which they conceived could be gained.

Conceptual Model

The major aim in the qualitative stage of the study was to provide a conceptual model which could be used as the basis on which to develop a quantitative measure of pregnancy planning/intention. In examining the detail of how women discussed the circumstances of their pregnancies, I found six aspects of the interviews through which one could gain an understanding about women's motivations towards pregnancy. These aspects were: 1) intentions, 2) feelings towards pregnancy/motherhood, 3) contraceptive use, 4) pre-conceptual preparations, 5) personal circumstances/timing, and 6) partner influences.

Within each aspect, a number of positions were possible. Presenting these aspects graphically, it became apparent that they fell into three domains: 1) women's stance in relation to pregnancy, 2) women's behaviour, and 3) the context of their lives (figure 7.1).

To check that the model (figure 7.1) was indeed a fair representation of the data, I systematically tested the women's accounts back against the model. Table 7.1 provides a summary of the women's positions on each of the dimensions. Ticks mean women's positions were positive, crosses mean they were negative, and crosses and ticks mean they were intermediate. The table is ordered with the women expressing the most positive position in relation to pregnancy at the top and the most negative at the bottom - the lines across the table are very simply to divide women into groups where they have similar numbers of positives and negatives (although not necessarily on the same criteria).

The table illustrates very clearly the varied nature of women's accounts. Seven women were positive and six women were negative on all dimensions. The other 34 women expressed mixtures of positive and negative responses, with some more positive and some more negative. In contrast to national survey questions which require women to have a clear positive or negative orientation to pregnancy and behaviour congruent with this orientation, table 7.1 shows that many women do not fall into these clear-cut extremes. The model (figure 7.1) reflects this complexity by not assuming or requiring congruence between the three domains or the six dimensions. The four conditions which had to be met before women applied the term "planned" to their pregnancy (as described in chapter 5) - clear positive intentions, non-use of contraception, partner agreement, and reaching the right time in terms of lifestyle/life stage - are incorporated in the model. However, the model is broader than just these conditions.

Applied terms and the conceptual model

Table 7.2 shows women in exactly the same order as table 7.1 (i.e. positive positions in relation to the model at the top of the table, negative positions to the bottom) and the terms they applied to their pregnancies. It is possible to see that women who applied the term

Figure 7.1: Conceptual model of pregnancy planning/intention

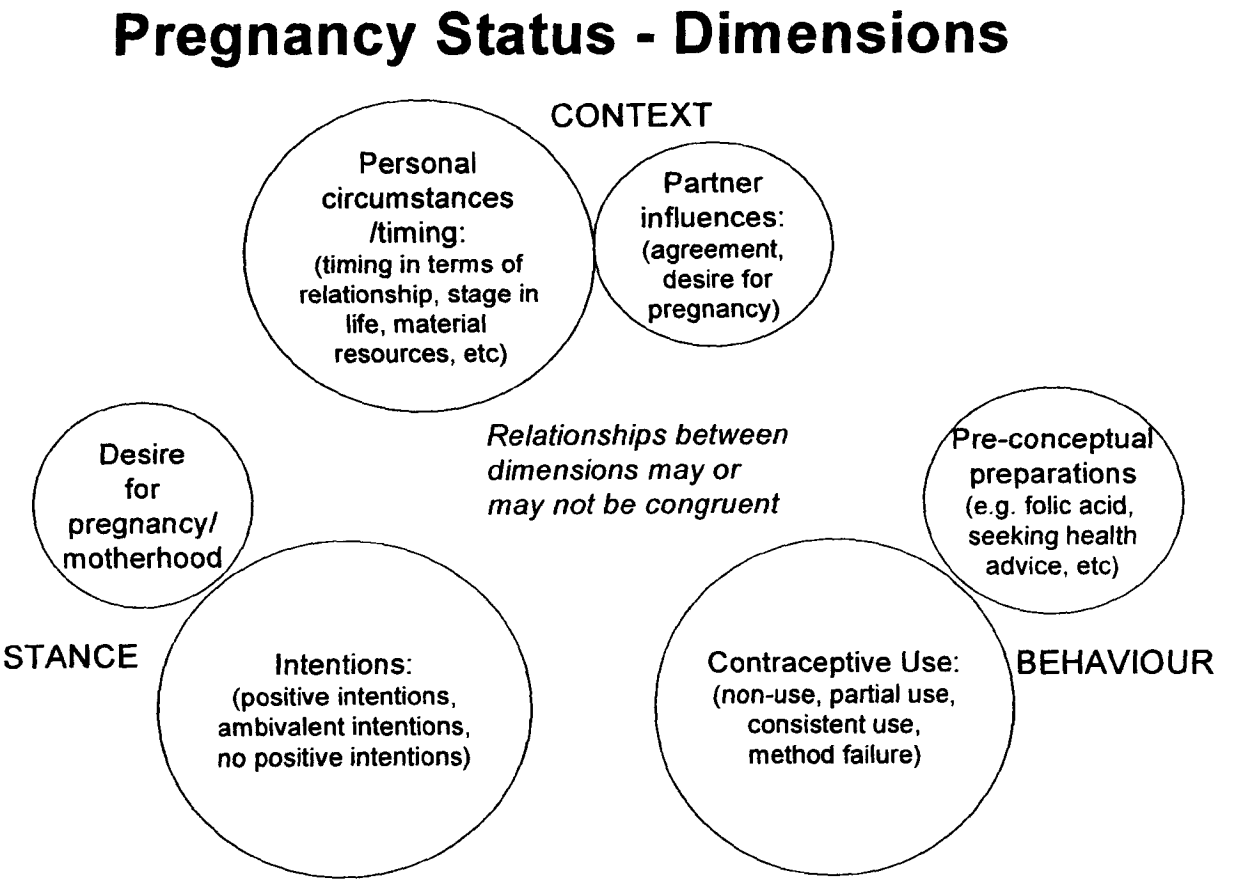


Table 7.1: Testing interviewees' accounts against the conceptual model

	STANCE		BEHAVIOUR		CONTEXT	
	Intention	Desire for motherhood	Non-use of contraception	Pre-conceptual preparations	Personal circumstances /timing	Partner influences
GB101	✓	✓	✓	✓	✓	✓
GB102	✓	✓	✓	✓	✓	✓
GB108	✓	✓	✓	✓	✓	✓
GB109	✓	✓	✓	✓	✓	✓
GB115	✓	✓	✓	✓	✓	✓
GB123	✓	✓	✓	✓	✓	✓
RK101	✓	✓	✓	✓	✓	✓
GB105	✓	✓	✓	✗	✓	✓
RK105	✓	✓	✓	✗	✓	✓
GB104	✓	✓/✗	✓	✗	✓	✓
GB111	✓	✓	✓	✗	✓	✓/✗
GB113	✓	✓	✓	✗	✓/✗	✓
RK107	✓	✗/✓	✓	✗	✓	✓
KW101	✓/✗	✓	✓/✗	✓	✓/✗	✗
GB106	✓/✗	✓	✓/✗	✗	✓/✗	✓
KW103	✓/✗	✓	✓/✗	✗	✗	✗
GB122	✗	✗/✓	✓	✗	✓/✗	✗
GB107	✗	✗/✓	✓	✗	✗	✗/?✓
KW102	✗	✓	✓/✗	✗	✗/✓	✗
GB112	✗	✗	✓	✗	✗	✓
RK106	✗	✗	✓	✗	✗	✓
GB126	✗	✗	✓/✗	✗	✗	✓
RK102	✗	✗	✓/✗	✗	✗	?✓
GB116	✗	✗	✓	✗	✗	✗
GB117	✗	✗	✓	✗	✗	✗
GB119	✗	✗	✓	✗	✗	✗
GB129	✗	✗	✓	✗	✗	✗
GB131	✗	✗	✓	✗	✗	✗
RK104	✗	✗	✓	✗	✗	✗
RK108	✗	✗	✓	✗	✗	✗
GB103	✗	✗	✓/✗	✗	✗	✗
GB118	✗	✗	✓/✗	✗	✗	✗
GB121	✗	✗	✓/✗	✗	✗	✗
GB124	✗	✗	✓/✗	✗	✗	✗
GB125	✗	✗	✓/✗	✗	✗	✗
GB127	✗	✗	✓/✗	✗	✗	✗
GB130	✗	✗	✓/✗	✗	✗	✗
KW104	✗	✗	✓/✗	✗	✗	✗
KW105	✗	✗	✓/✗	✗	✗	✗
KW106	✗	✗	✓/✗	✗	✗	✗
RK110	✗	✗	✗/✓	✗	✗	✗
GB110	✗	✗	✗	✗	✗	✗
GB114	✗	✗	✗	✗	✗	✗
GB120	✗	✗	✗	✗	✗	✗
GB128	✗	✗	✗	✗	✗	✗
RK103	✗	✗	✗	✗	✗	✗
RK109	✗	✗	✗	✗	✗	✗

Table 7.2: Terms applied and the conceptual model

	STANCE		BEHAVIOUR		CONTEXT		TERMS APPLIED
GB101	✓	✓	✓	✓	✓	✓	planned, intended
GB102	✓	✓	✓	✓	✓	✓	planned
GB108	✓	✓	✓	✓	✓	✓	planned, intended
GB109	✓	✓	✓	✓	✓	✓	planned, intended
GB115	✓	✓	✓	✓	✓	✓	planned, intended
GB123	✓	✓	✓	✓	✓	✓	planned
RK101	✓	✓	✓	✓	✓	✓	planned
GB105	✓	✓	✓	✗	✓	✓	planned, intended
RK105	✓	✓	✓	✗	✓	✓	planned
GB104	✓	✓/✗	✓	✗	✓	✓	planned, intended
GB111	✓	✓	✓	✗	✓	✓/✗	intended, not planned
GB113	✓	✓	✓	✗	✓/✗	✓	unplanned
RK107	✓	✗/✓	✓	✗	✓	✓	planned, intended
KW101	✓/✗	✓	✓/✗	✓	✓/✗	✗	*unable to apply terms*
GB106	✓/✗	✓	✓/✗	✗	✓/✗	✓	*unable to apply terms*
KW103	✓/✗	✓	✓/✗	✗	✗	✗	*unable to apply terms*
GB122	✗	✗/✓	✓	✗	✓/✗	✗	unplanned
GB107	✗	✗/✓	✓	✗	✗	✗/?✓	unplanned
KW102	✗	✓	✓/✗	✗	✗/✓	✗	unplanned
GB112	✗	✗	✓	✗	✗	✓	unplanned, unintended
RK106	✗	✗	✓	✗	✗	✓	unplanned
GB126	✗	✗	✓/✗	✗	✗	✓	unplanned, unintended
RK102	✗	✗	✓/✗	✗	✗	?✓	unplanned
GB116	✗	✗	✓	✗	✗	✗	unplanned
GB117	✗	✗	✓	✗	✗	✗	*no terms*
GB119	✗	✗	✓	✗	✗	✗	unplanned
GB129	✗	✗	✓	✗	✗	✗	unplanned, unintended
GB131	✗	✗	✓	✗	✗	✗	unplanned
RK104	✗	✗	✓	✗	✗	✗	unplanned
RK108	✗	✗	✓	✗	✗	✗	unplanned
GB103	✗	✗	✓/✗	✗	✗	✗	unplanned
GB118	✗	✗	✓/✗	✗	✗	✗	unplanned
GB121	✗	✗	✓/✗	✗	✗	✗	unplanned
GB124	✗	✗	✓/✗	✗	✗	✗	unplanned, unintended
GB125	✗	✗	✓/✗	✗	✗	✗	unplanned, unintended
GB127	✗	✗	✓/✗	✗	✗	✗	unintended
GB130	✗	✗	✓/✗	✗	✗	✗	unplanned, unintended
KW104	✗	✗	✓/✗	✗	✗	✗	unplanned, unintended
KW105	✗	✗	✓/✗	✗	✗	✗	unplanned, unintended
KW106	✗	✗	✓/✗	✗	✗	✗	unplanned, unintended
RK110	✗	✗	✗/✓	✗	✗	✗	unplanned
GB110	✗	✗	✗	✗	✗	✗	unplanned, unintended
GB114	✗	✗	✗	✗	✗	✗	unplanned
GB120	✗	✗	✗	✗	✗	✗	unplanned
GB128	✗	✗	✗	✗	✗	✗	unplanned, unintended
RK103	✗	✗	✗	✗	✗	✗	unplanned
RK109	✗	✗	✗	✗	✗	✗	unplanned, unintended

Table 7.3: Characteristics of interviewees by the conceptual model

	Age	Marital status	Ethnicity/ born abroad	Education	Pregnancy outcome	Pregnancy number	Child number	Space
GB101	36	M	Born abroad	Deg	Cont	2	1	-
GB102	36	M	Brit	Deg	Cont	4	4	1-3
GB108	40	M	Brit	Deg	Cont	2	2	3+
GB109	42	M	Brit	16+	Cont	3	3	1-3
GB115	27	M	Brit	Deg	Cont	1	1	-
GB123	40	M	Born abroad	Deg	Cont	2	2	1-3
RK101	35	M	Brit	Deg	Cont	2	1	-
GB105	31	M	Brit	16+	Cont	2	2	1-3
RK105	27	M	Born abroad	Deg	Cont	1	1	-
GB104	33	M	Brit	Deg	Cont	1	1	-
GB111	30	Coh	Born abroad	16+	Cont	2	1	-
GB113	25	M	Born abroad	Deg	Cont	2	1	-
RK107	23	M	Born abroad	16+	Cont	1	1	-
KW101	43	Coh	Brit	16+	Cont-mis	2	2*	1-3
GB106	30	M	Brit	Deg	Cont	1	1	-
KW103	32	S	Brit	Deg	TOP	5	1*	-
GB122	17	S	Brit	School	Cont	1	1	-
GB107	17	Coh	Brit	School	Cont	2	2	<1
KW102	31	S	Brit	16+	Cont	1	1	-
GB112	22	Coh	Brit	School	Cont	1	1	-
RK106	26	Coh	Born abroad	16+	Cont	1	1	-
GB126	26	S	Born abroad	16+	TOP	2	1*	-
RK102	31	M	Brit-E	Deg	Cont	3	3	1-3
GB116	16	S	Brit-E	16+	Cont	1	1	-
GB117	15	S	Brit	School	Cont	1	1	-
GB119	19	S	Brit	16+	TOP	1	1*	-
GB129	17	S	Brit	School	TOP	1	1*	-
GB131	19	S	Brit	School	TOP	1	1*	-
RK104	27	Coh	Brit	School	TOP	5	4*	1-3
RK108	17	S	Brit	School	Cont	1	1*	-
GB103	27	S	Born abroad	Deg	TOP	1	1*	-
GB118	22	S	Born abroad	16+	TOP	1	1*	-
GB121	32	S	Born abroad	Deg	TOP	2	1*	-
GB124	31	S	Brit-E	16+	TOP	2	2*	1-3
GB125	22	S	Brit-E	Deg	TOP	3	1*	-
GB127	26	Coh	Born abroad	Deg	TOP	2	1*	-
GB130	16	S	Born abroad	16+	TOP	1	1*	-
KW104	31	Sep	Brit	Deg	TOP	1	1*	-
KW105	38	S	Born abroad	16+	TOP	1	1*	-
KW106	42	S	Brit	Deg	TOP	1	1*	-
RK110	20	S	Born abroad	Deg	TOP	1	1*	-
GB110	17	S	Brit-E	School	Cont	1	1	-
GB114	20	Coh	Brit	16+	Cont	1	1	-
GB120	37	Div	Born abroad	16+	TOP	3	2*	3+
GB128	17	S	Brit	16+	TOP	1	1*	-
RK103	33	M	Born abroad	Deg	Cont	3	3	3+
RK109	21	Coh	Brit	Deg	Cont	2	1	-

* indicates which number child this pregnancy would lead to if the pregnancy were continued

"planned" are to the top of the table, as would be expected. It also shows that the terms "unplanned" and "unintended" cover a wide variety of situations.

Women's characteristics and the conceptual model

I was interested in whether women who had particular positions in relation to the model (i.e. at the top, middle or bottom of table 7.1) had particular characteristics. Previous national surveys have identified characteristics associated with planned/unplanned pregnancies. For instance, Cartwright's surveys of married women with live births showed that pregnancies leading to the second child were most likely to be planned, and pregnancies leading to the third or more child were most likely to be unplanned (Cartwright, 1970, 1976). Cartwright also found that pregnancies outside a 1-3 year gap from the last child were more likely to be unplanned (1970). In the later surveys, which included single women, the picture changed slightly so that the two main groups of mothers with unplanned pregnancies were the young and single and those who already had two or more children (Cartwright, 1988; Fleissig, 1991). Fleissig also showed that women who were owner occupiers or had completed full time education after the age of 18 were more likely to have planned pregnancies, and Cartwright also again found that pregnancies occurring outside a 1-3 year gap since the last child were more likely to be unplanned. Findings from the U.S. National Survey of Family Growth showed similar variations, with higher rates of unplanned pregnancy in women who were unmarried, black, low income, or at either end of the reproductive age span (Brown and Eisenberg, 1995). I was able to examine these characteristics using the broader criteria of the model (table 7.3).

Table 7.3 shows that women with positive positions in relation to the model (i.e. the top third of the table) tended to be older, married, and more highly educated, and the most likely to continue their pregnancies. Women with the most intermediate positions in relation to the model (i.e. the middle third of the table) included some women in their late 20s/early 30s, but on the whole comprised younger women. They also tended to be less well educated, more likely to be white British, and more likely to be cohabiting or single. Women in the bottom third of the table were a range of ages, were largely cohabiting or single and well educated, and the most likely to terminate their pregnancies. There was no

obvious relationship between the number pregnancy or the number child this pregnancy would lead to, or the space since the last child.

Conclusions

In this chapter I identified the aspects of women's accounts which provided an insight into their motivations towards pregnancy: women's intentions; desire for pregnancy/motherhood; contraceptive use; pre-conceptual preparations; personal circumstances/timing; and partner influences. These aspects, grouped into three domains (stance, behaviour, context), formed the basis of the conceptual model of pregnancy status (figure 7.1). In keeping with the complexity of women's accounts, each dimension of the model represents a number of positions (e.g. positive, ambivalent, negative) and a feature of the model is that it does not assume, or require, congruence between the dimensions or domains.

In this chapter, I also demonstrated the wide range of women's positions in relation to the model (table 7.1); seven women were positive and six women were negative on all aspects, with 34 women falling somewhere between these extremes. Such variation is a far cry from the clear cut positions required by most survey questions. The women with the most positive positions in relation to the model were most likely to older, married, and more highly educated (which broadly fits with previous findings about "planned" pregnancies). However, the characteristics of women with more intermediate and negative positions suggest that there may be further groupings or sub-divisions of women not previously identified.

Chapter 8: The influence of hindsight

In this chapter, I present the findings of the follow up interviews carried out with women two to six months after their deliveries. Although a range of topics were covered in the interviews, myI main focus is on comparing women's accounts on the dimensions of the conceptual model. The chapter is divided into four sections: 1) women's accounts of the circumstances leading to their pregnancies; 2) terms defined and applied; 3) consideration of abortion; and 4) new perspectives.

Women's accounts of the circumstances leading to their pregnancies

Overall, in examining women's accounts of the circumstances leading to their pregnancies, consistency with their previous accounts is the predominant feature. Table 8.1 shows a summary of women's consistencies/inconsistencies on the material which formed the six dimensions of the conceptual model. In most instances, women confirmed actual points of their previous accounts at one or more places in the interview. In a few instances, women did not spontaneously confirm material and/or the interviewer did not raise the topic, however there was nothing in the interview which contradicted the previous account. Only in one instance regarding contraceptive use did a woman actually contradict her previous statements. In the rest of this section, I describe the way in which women confirmed (or contradicted) their previous accounts.

Intentions

As in the main round interviews, women revealed much about their intentions prior to pregnancy throughout the interview, through references to the circumstances in which they became pregnant and their thoughts and feelings about these circumstances. In terms of apparent intentions, the accounts of all 20 women were extremely consistent with their main round interviews. The positions of eight women were positive (GB101, GB102,

Table 8.1: Consistency between information given in follow up interviews and information given in main interviews

	Intention	Contraceptive use	Feelings towards pregnancy/motherhood	Personal circumstances/timing	Partner influences	Pre-conceptual preparations
GB101	✓	✓	✓	✓	✓	-✓
GB102	✓	✓	✓	✓	✓	✓
GB104	✓	✓	✓	✓	✓	✓
GB105	✓	✓	✓	✓	✓	✓
GB106	✓	✓	✓	✓	✓	✓
GB109	✓	✓	✓	✓	✓	✓
GB110	✓	✓	✓	✓	✓	✓
GB112	✓	✓	✓	✓	-✓	✓
GB114	✓	-✓	✓	✓	✓	✓
GB115	✓	✓	✓	✓	✓	✓
GB116	✓	✗	✓	✓	✓	✓
GB122	✓	✓	✓	✓	✓	✓
RK101	✓	✓	✓	✓	✓	-✓
RK102	✓	✓	✓	✓	-✓	✓
RK103	✓	✓	✓	✓	✓	✓
RK105	✓	✓	✓	✓	✓	✓
RK106	✓	✓	✓	✓	-✓	✓
RK107	✓	✓	✓	✓	✓	✓
RK109	✓	✓	✓	✓	✓	✓
KW102	✓	✓	✓	✓	✓	✓

✓ = consistent/confirmed -✓ = consistent with, but not confirmed ✗ = account changed

GB104, GB105, GB109, GB115, RK101, RK105), one was ambivalent (GB106), and 11 were negative (i.e. absence of positive intentions). On occasions, women made almost identical comments. This is notable in two interesting cases. Firstly, the woman who described her ambivalent intentions:

> "[discussing terms] Um .... well wanted .. it's probably ... I think she was sort of semi ... she was sort of semi-planned but she was more in the kind of default rather than the active planning ... sort of thing ... so ... but I suppose being realistic there was a fairly high chance that I would have got pregnant but I would really say she was ... I don't think she was actively planned ... but on the other hand she wasn't unplanned either .... I could have used contraception if [...] if I actively didn't want to have her and in the past I used the pill for a few years and very much didn't want to get pregnant. So I think my feelings and thoughts around it were probably quite different than they would have been a few years ago (GB106B)"

Secondly, a woman who, in her main round interview, reported no positive intentions but seemed quite accepting of a pregnancy. Her description and reasoning in the follow up interview is almost identical:

> *R:* [discussing terms] 'Planned' pregnancy – I don't think you can plan a pregnancy.
>
> *Int:* You don't think you can? No?
>
> *R:* No, 'cause a baby.....like, my friend's been trying and trying and trying for a baby... and it's never worked and where I didn't plan for my baby, she just come.
>
> *Int:* Yes...yes.
>
> *R:* If you plan a baby it's never going to work – it's going to happen when the time's right, I think.
>
> *Int:* Yes...yes...kind of fate, that when it's meant to be it will happen.
>
> *R:* Mmm
>
> *Int:* Yes. Ok. What about 'unplanned', 'cause that's a term that's often used?
>
> *R:* 'Unplanned' is when you don't plan a baby, it just happens...like she just happened (laughs)

Int: Ok. So would you describe her as an unplanned pregnancy, or.....?

R: Well, she was unplanned really 'cause I think....we didn't use nothing but, she's just...happened.

Int: Yes. So, although you weren't using contraception you weren't planning and intending to get pregnant?

R: Well we'd see if I got pregnant, then I got pregnant, and if I didn't I didn't (GB122B).

Contraceptive use

Eighteen of the 20 women, describing their use of contraception around the time they became pregnant, confirmed their previous accounts. This information was either probed by the interviewer or emerged spontaneously, for example in the instance of one woman who described her comments at a postnatal group meeting:

> "I mean we had this conversation last night about pregnancy with all the women and 'oh yeah, she was a condom failure' and um, one of the women said 'oh don't say that too loud, don't say that in front of her'. I said, 'no, but she's a happy one', you know (laughs)" (KW102B).

In one case, GB114B, actual confirmation of previous contraceptive use is not present in the interview. It is possible that the shared understandings of the interviewer (GB) and interviewee meant that the interviewer understood the context of the woman's comments and therefore failed to probe, particularly in light of the fact there had been several interruptions to the interview. However, the interviewee's account as a whole was consistent with her previous description of contraceptive failure.

Only in one case, GB116, did the woman's account about her contraceptive use actually change in the follow up interview. In her main round interview, the woman describes her use of condoms and her dislike of the pill:

Int: Alright then .... I'm going to take you back to around that month that you got pregnant. Going back to when you got pregnant. (R giggles). OK ..... so can you pinpoint a reason why in that month you got pregnant?

R: Basically we didn't use the condom properly. It just wasn't used properly.

Int: Um .. what does that mean?

R: .....Um ... alright ..... after we'd finished, like it came off, and we didn't seek after attention.

Int: So had it actually come off in the vagina?

R: Yeah.

Int: And were you using condoms for every occasion?

R: Yeah, for every.

GB: And you'd found them not too problematic?

R's boyfriend: Uhhh

R: Sometimes ....it was like an on and off thing, sometimes it would happen.

Int: And had you ever used any other forms of contraception?

R: No.

Int: And why did you choose the condom then?

R: Because I will not take the pill, and that's the easiest thing that both of us agreed on.

Int: What is it about the pill?

R: I don't like the side effects that you can get. And .... I just don't like it.

Int: And you haven't tried it because of those things?

R: Uh huh.

GB: What sorts of side effects concern you most?

R: The bleeding, the way it just changes you, things like that. It can .... well I've heard it can mess up your .... your insides like, so if you ever wanted to have a child, it could mess it up. And it can make you feel sick and all that, just things like that (GB116).

In the follow up interview, the interviewee explains that they were not using contraception

around the time she became pregnant, although she confirms her dislike of the pill:

> *Int:* And unplanned, what that means to you?
>
> *R:* Unplanned is what happened to me! (laughter)
>
> *Int:* So it's a contraceptive accident, was it a contraceptive accident?
>
> *R:* It wasn't a contraceptive accident, it was just being really silly.
>
> *Int:* So you were not using contraception or anything no?
>
> *R:* No.
>
> *Int:* So was that for a long period of time you hadn't used any contraception of any form?
>
> *R:* Well, yeah 'cause we were going out for a whole year before I had Leroy and we weren't using contraception but everything was fine. So. I don't really find contraception comfortable, the pill and that, I don't like it at all.
>
> *Int:* Yes, I remember actually last time you didn't like the pill, you weren't happy about taking the pill or anything. So have you used any methods of contraception at all ever?
>
> *R:* Um, we've tried the condom but it's just that I don't like it at all.
>
> *Int:* So, so since, since Leroy's been born, have you not used any contraception with your boyfriend?
>
> *R:* No (GB116B).

For a number of reasons, it is likely that the account given in the follow up interview was a more accurate description of events. Firstly, the interview was carried out in the woman's home without the boyfriend present. (I also felt the rapport between us was better than in the first interview.) Secondly, the woman actually discounted the explanation of a "contraceptive accident" that I had proposed as the interviewer, giving a less socially desirable account in its place. Thirdly, her revised account of her contraceptive use coincided with her current non-use of contraception (which we discussed further in the

interview, particularly in view of the fact that she thought she might be pregnant again)[1].

Feelings towards pregnancy/motherhood

All women's accounts of their desire for pregnancy/motherhood prior to their becoming pregnant were consistent, including the instances where women's desires for motherhood did not quite fit with their intentions. For instance, two women who were previously classified as having positive intentions but ambivalent desires for motherhood, repeated their views at various times in their follow up interviews, one instance from each is below:

> *R:* [wanted and unwanted is] slightly different now, I think. Planned - yeah, you plan to have it but ... I felt like, you know, I didn't really want to have it. But I had to plan to, you know, had to decide to have it this year whether I didn't really want. The two are different, I think.
>
> *Int:* Right. And how would you define this pregnancy that you've just finished?
>
> *R:* Ohhhh! Mixed.
>
> *Int:* Mixed.
>
> *R:* Mixed. Um .. in one mind I wanted it, another mind I didn't. But it was planned (RK107B).

> "[discussing terms:] .. if I didn't get my job we'd planned to have a baby. I suppose it was intended and it was wanted once I was pregnant, and there were times when I ... I felt like I didn't want to be pregnant, but um ... actually, when I was trying on maternity clothes ... I was feeling very petulant .. because they weren't very nice. And I didn't want to be pregnant anymore (laughs). But on the whole, yeah, planned, intended and wanted, I'd say" (GB104B).

In the same way, the woman who had not intended to become pregnant but had reported a "burning desire" for motherhood in her main interview, confirmed that desire on a number of occasions, e.g.:

---

[1] For these reasons, the follow up interview account of contraceptive use was used ahead of the main round interview account when analysing the main round of interviews (see chapter 6).

> "I don't regret having her and, you know, I'm really happy and I'm really ... she's very easy and it's great and, but er .. but er the first, the first weeks I was in shock I think, thinking, 'oh god! You know, I've wanted this for so long, oh my god'. I mean .. and I was having quite negative thoughts as well, I was thinking, 'that's awful you know, I've wanted this for so long' (KW102B).

Personal circumstances/timing

Information about the context of women's lives at the time they became pregnant (e.g. relationship situation, home/housing situation, career/education stage, family dynamics, age) permeated women's interviews. Women made references to these circumstances in a variety of ways. For instance, in the case of interviewee KW102, the fact that she had become pregnant at a very early stage in her relationship (and therefore at what she considered a far from ideal time in the relationship), was constantly reiterated in the interview. Two instances are shown below:

> *R:* .. because it's getting .. the relationship is lovely now because obviously I've got my figure back.
>
> *Int:* Yes.
>
> *R:* And we're establishing a relationship that we didn't have really.
>
> [...]
>
> *R:* He worries .. he worried financially and .. and about providing a home and I think that if we'd have know each other for years .. he often says 'oh, if only we'd known each other for years we could have found and .. and provided a .. a home'" (KW102B)

Also, as in the main round interviews, when interviewees made explicit references to timing (i.e. good time, bad time) it was usually in relation to some aspect(s) of their personal circumstances, e.g.:

> "I don't honestly think that looking back at my life that there was a .. a .. some other time that would have been better. [...] Practically perhaps other times would have been easier perhaps when we were working in the Middle East er it might have been better, we ... we would have certainly been financially better off and we would have had access to cheaper child care or

whatever but um, but we really wanted to do our jobs then, we wanted to travel as much as we did and it was a job that demanded a lot of energy" (GB101B).

This interviewee also made reference to timing her pregnancy (in terms for aiming for a specific period of time), as she had also done in her main round interview:

> "I mean we even tried to take care about the timing, to the extent that it is possible and when you try for the first time you don't really know if it's going to work um, but I thought that it would have been nice to start trying in the early summer er, so that anytime after March if the baby was born it would be good, we would have the holiday to think about and the baby to [baby gurgles], yes, um, and as it happened he came towards the latter part of the summer, it was fine. We still had er, how much, six or eight weeks before he was born, before the term started I mean (GB101B).

Partner influences

Women who had positive intentions all confirmed their partner's agreement with the decision to try to conceive. Of the women who had ambivalent or no positive intentions, none contradicted their previous accounts. In the cases of two of these women who, in the main round interviews, reported that their partners had desires for pregnancy (GB112, RK106), neither directly confirmed this (although they both said that their partners had been very excited at the prospect of the births). Throughout, both women maintained their presentations that the pregnancies had not been intended. Both women also confirmed the accounts they had given previously regarding their contraceptive decisions, the absence of a strong rationale for stopping the pill being notable, e.g.:

> *Int:* But you're thinking of starting the pill, when you do start?
>
> *R:* Er.....yes, probably...yes....because he...I mean, my boyfriend doesn't want to use condoms....I don't know if I mentioned it before.
>
> *Int:* I remember you saying that.
>
> *R:* yes....so the pill would be the only contraception means.
>
> *Int:* and you're happy to go back on that for three or four years? [interviewee had said she did not want another child for 3 or 4 years]

R: Um....once again, I'm not quite sure because in the first place, before I had him I stopped using it because I wasn't feeling comfortable anymore. So....I feel....probably, probably that's my only choice really, so...go back on it...Yeah (nervous laugh)" (RK106B).

The case of interviewee RK102 was also interesting. In the main round interview there had been a suggestion, in a brief exchange between the husband and wife, that they might not have been entirely unified in their intentions about prevention of their most recent pregnancy. In the follow up interview, the husband and wife do not dispute the status of the pregnancy (their third child), both describing it as "unplanned". However, in a discussion about their first two pregnancies and what they would have done if their third child had been a girl (they already had two daughters), there is again a suggestion of some disagreement:

R's husband: [to wife:] What if it was a girl?

R: If he was a girl I wouldn't have tried for a boy ... you knew .. we both decided that ...

R's husband: [jokingly:] Just asking! For the record.

Int: (laughs) For the record .. you'd both decided before he was born...?

R: Yes .. if he'd been a girl, that we wouldn't try for a boy....

Int: Oh really?

R: Because he came uninvited, if you like, we hadn't really planned for him ... So really it's a good thing that we're all happy ...

R's husband: The middle one was kind of planned.

R: [firmly:] We planned the second one.

R's husband: The first one was [inaudible word spoken over by wife, sounds like "aah-so"]

R: [speaking over husband:] The first one wasn't planned.

Int: (Laughs loudly, sounds uncomfortable)

R: [to husband:] Oh you took no part in that, did you?! (RK102B)

Pre-conceptual preparations

Three of the five women who had reported carrying out pre-conceptual preparations in the main round interview spontaneously referred to these preparations in their follow up interviews, e.g.:

> "...we went to consult with the doctor before we .. before I became pregnant and um, yes I would say it was .. definitely was planned" (GB102B)

> "I think I would have .. one of the feelings I had right at the beginning of the fertility treatment that I shouldn't see the consultant that I saw, but I went ahead and saw him, and that's the only thing I would change is the consultant" (GB109B).

Two of the women did not spontaneously confirm their previous account of pre-conceptual preparations and, unfortunately, the interviewers did not probe. However, these women's accounts overall were extremely consistent.

Of the women who had not previously reported carrying out pre-conceptual preparations, all were consistent in their follow up accounts.

Terms defined and applied

We asked the women to define the terms "planned", "unplanned, "intended", "unintended", "wanted" and "unwanted" again at the end of the follow up interviews. Whilst women offered definitions, we did not probe these definitions in the same depth as the main round interviews. Even so, the range of definitions was much the same as in the main investigation, with no uniform agreement about any one term.

We also asked women if they would apply any terms to their pregnancy (in the same manner as had been done in the main round interviews). By and large, women applied the same terms depending on their preferences and understanding of the terms. Only one woman substantially changed the terms she applied to her pregnancy, using "unplanned"

and "wanted" to describe her pregnancy in the main interview, but only "wanted" in the follow up interview:

> *R:* I couldn't say it was 'planned' but I wouldn't say it was 'unplanned.'
>
> *Int:* Yes
>
> *R:* 'cause that – I don't like the way that comes across.
>
> *Int:* Yes
>
> *R:* But um, definitely 'wanted'. ... I think that's the only one out of them that I would use (GB114B).

The reason for this seems to be based on her understanding of the terms "planned" and "unplanned" (which had changed from her main round interview):

> "The planned and intended you associate with a 30 plus sort of lovely job, nice house, everything wonderful and unintended, unplanned is like kind of the 16 year old that's just discovered she's pregnant and is on the social and.... you know, I just don't like them" (GB114B).

This woman did not, however, describe the circumstances of her pregnancy any differently in her interview; it was only the connotations of the term "unplanned" that she objected to.

Consideration of abortion

On the consideration of abortion, it was notable that one woman offered a revised version of events. In her main round interview, interviewee RK109 had described in detail how she and her partner had considered abortion and had eventually come to a decision to continue the pregnancy. However, in her follow up interview she was extremely reluctant to admit she had ever considered abortion. The extracts below show how the interviewer broached this topic on three separate occasions in the interview:

> [1]
> *Int:* And would you...looking back in hindsight...do you think you would have made the same decision...to keep the child?

R: ...Yeah, I don't think I would have ever have...um had an abortion...ever. Because it was my...you know, in the end ... saying there was loads of options around then, with a condom, the pill and also...yeah, although I even took the morning after pill... So it was meant to happen... to me...that was my life. That was a part of my life, so, no I would *never* have done that. I did take the morning after pill, so that...just didn't work, so... I knew that that was...I knew I was quite safe...that somebody had their hand on me...saying that...

Int: Saying that this is meant to happen.

R: happen, yeah.

Int: So, you don't think you would have had an abortion?

R: No...no.

Int: Ok

R: Not a chance.

Int: You considered it though. I remember you saying... ...but

R: [very faint and dismissive:] Yeah it was...

Int: Perhaps in hindsight you...?

R: No...No. I considered it but I never would have done it (RK109B).

[2]
Int: Ok. And does the decision, kind of thing, come into it? I remember you mentioning last time that the first couple of weeks before you had decided and you went to Cyprus, and discussing all the pros and cons of it as well. Does that decision come in to it at all? I mean, it was just quite interesting when you said how, you know, even though you thought of abortion you wouldn't have gone through with it...

R: through with it.

Int: Is that because of the baby now or is that because you're just kind of thinking about it?

R: [laughter in voice:] I don't remember what I said on that one (RK109B).

[3]
R: I think he deserves every speck of....you know, a hundred percent of....attention. So I'd be more devastated now [with an unintended pregnancy] than what I would be beforehand. But I never would have gone through with it [abortion]....if I was on a table for it, I still never would have.

Int: Really? A lot of women say that after they've had babies.

R: Yeah. Maybe I said something different then?

Int: I think you just said you were considering it as an option?

R: Yeah, it was an option...we did discuss that....but I wouldn't actually.... (RK109B).

Another woman, GB110, who considered abortion (to the point where she and her partner were in the hospital clinic waiting to see the doctor for an assessment) was open in discussing this in the confidential situation of the interview, but said (in both interviews) that she that she did not reveal this information generally because it was something she was "not very proud of". A further woman, RK103, who had considered abortion for reasons of possible fetal harm after taking emergency contraception seemed to be able to discuss this openly and not suffer the same fear of moral opprobrium.

Current perspectives

One of the interesting aspects of the follow up interviews was the extent to which women modified their opinions and thoughts on various topics in light of their new experiences. However, women clearly reported these as changes that had occurred since they became pregnant or had given birth, sometimes contrasting these new perspectives with their old ones. Below, are some illustrations:

New motherhood

Women who became mothers for the first time all commented on their feelings about new motherhood - some were positive, some were negative, many a mixture of both. One

woman, who had intended to become pregnant but had very ambivalent feelings towards motherhood, experienced something of a Pauline conversion, e.g.:

> Int: And how have you found new motherhood?
>
> R: Oh, love it! I mean I'm very surprised but I absolutely love it! I want another one now! (laughs) (GB104B).

Other older mothers also tended to report that the experience of motherhood was more positive than they had expected, e.g.:

> "Oh it's, brilliant, I really never expected it to be like this, I never, I could never have envisaged feeling so responsible, so protective um, I just love her so much you know" (RK101B).

> "Definitely it's a lot more positive experience of motherhood than I dared hope for" (RK105B).

Younger women also reported experiencing joy/overwhelming love/strong feelings of protection for their babies, but this was often tempered with some of the more negative experiences of new motherhood (possibly because they tended to have less support from their partners and fewer material resources), e.g.:

> *Int:* Right. Now, how do you find being a new mother?
>
> *R:*....Lonely actually. Because while you're pregnant everybody like, opens doors for you, lets you sit down on the bus etc... As soon as you've got a pram in front of you, people get move out of your way and...it's quite lonely actually....unless you've got a specific group of friends that stand by you all the way through.... 'cause I'm quite lucky - a couple of girls that I know have just had babies as well so we tend to get together and go out together.... which... but if I didn't have them I don't know what I'd do.... (GB114B).

Timing of the pregnancy

Women who had not had positive intentions to become pregnant sometimes expressed positive views about the timing of the pregnancy. This was not a change in their accounts - more a view that everything had worked out ok despite the unintentional start. For example,

interviewee RK102:

R: Now I think maybe it's a good thing that he did come...

Int: Oh really?

R: Sooner rather than later.

Int: Really?

R: So that you can just get the kids out of the way ... concentrate on my family and then concentrate on what I've got to do. So, in that respect I'm quite glad really (RK102B).

This does not contradict her view about her feelings prior to pregnancy which are also clearly expressed in the interview:

Int: It was if you could think back to that time....

R: Yeah

Int: just before you got pregnant, or when you got pregnant, if you would do anything different.

R: We would have gone on the pill sooner.

Int: Really?

R: I was thinking about it...cos I thought, 'Right, I've got my weight down, if I put on half a stone, so what. I'm bound to lose it afterwards'...I probably would have gone on the pill a bit sooner

Int: Right

R: And he wouldn't have come so soon (RK102B).

Three of the older mothers also made remarks that if they had known what they know now, they would have had a baby sooner, e.g.:

Int: If you could think back to just before you got pregnant, would you do the same thing all over again?

R: Oh god yes, yeah definitely, definitely. Um, with hindsight I think I would probably got pregnant a bit sooner (laughs).

Int: Would you, yes.

R: Because it's just, I mean I couldn't have imagined what she'd be like, and I think it probably helps that she's just, she's a good baby as well. Yeah, no I wouldn't .. wouldn't do anything differently, except maybe getting pregnant a bit sooner (RK101B).

Numbers of children

In both the main round and follow up interviews, we asked women their views on having children in the future. Comparison of women's thoughts between the main round and the follow up interviews showed both consistency and change, e.g.:

Main interview: "No, no. One (laughter). Concentrate resources! No ... One, that's all we're thinking about really" (RK101).

Follow up interview: "We always said that we'd only have one. We always said that for ages and ages, and then I mean I loved being pregnant and John was really worried that I would want to be pregnant again. .. Um, but with the, I mean the birth experience I think, I was expecting it to be a fabulous experience and ended up not being that at all um, so it put me off. But also, I can't believe that we'd be this lucky again, and we have both thought in the last, whenever you get over the horrible six week stage and things start to get a bit easier sort of thing, oh you know it might be nice to have another one, but um, but we're definitely not going to, but who can tell, but I don't think we are" (RK101B)

Main interview: "If we have the chance to have them, it'll only be one and that's a late chance .... really distant" (GB116)

Follow up interview: "Yeah in about two years or like two and a half or something maybe then, because I just want to have all of them together, spacing it out.[...] my maximum [number of children] is actually six" (GB116B).

Main interview: "I have thought about other kids but it would be in a long time yet...you know, I mean, as soon as the baby's born I'll have to go onto contraception definitely because I don't want this to happen again" (GB110)

Follow up interview: "But now I've totally changed since I had him. It's just

unbelievable. [...] So I think, if...if I were to have another child it would be nice for him to have a companion, so they grow up together.... rather than like you know, ten years or something" (GB110B)

Conclusions

In carrying out the follow up interviews we revisited 20 of the 27 women who continued their pregnancies. The aim of the interviews was to find out if women's accounts of the circumstances in which they became pregnant had changed since the birth of their baby. We adopted an approach where we did not try to repeat the first interview but asked women about their experiences since we last saw them, addressing circumstances of pregnancy within the interview wherever possible. We found that, overall, women were very consistent in their descriptions of the circumstances in which they became pregnant; confirmation of many points emerged spontaneously and some were probed by the interviewers. Only one woman changed one aspect of her account (her contraceptive use) relating to the conceptual model in her follow up interview.

It is possible that sending the same interviewer in 16 of the 20 cases, and an interviewer who was familiar with the material from the first interview in the other four cases, may have had the effect of ensuring greater similarity of the accounts than would have otherwise been the case (e.g. through women's awareness of the interviewers' knowledge of the previous accounts, or shared understandings). Unfortunately, it is not possible to gauge the extent of any such effect. One measure of reassurance, however, can be gained from the fact that the information about women's circumstances of pregnancy emerged in response to a different structure of interview questioning, as the interviews covered new material (e.g. women's experiences of delivery, life as a new mother, etc). It was very apparent that women could distinguish between their thoughts and feelings about events leading to their pregnancies and their thoughts and feelings about these events now, in light of their new experiences.

Also, it would be inaccurate to say there was no change in women's accounts. As already noted, one woman modified her account of contraceptive use, and another woman, to a

greater extent, revised her account of making a decision about her pregnancy. In her follow up account, the latter woman was reluctant to admit that she had ever considered abortion, to the extent that it almost seemed that she could no longer bring herself to believe she had seriously considered it. That consideration of abortion was a sensitive topic among women who had ultimately continued their pregnancies was also confirmed by another woman who said that she would not admit to this outside the confidential situation of the interview. Fortunately, consideration of abortion is not one of the aspects of the conceptual model. One woman also changed the terms she applied to her pregnancy. This was not surprising as the main round interviews had shown that there was much variation and movement in women's definitions and women's preferences for terms were impossible to predict. This woman perceived a new nuance in the term "unplanned" and therefore did not wish to apply it.

Overall, women's accounts of the circumstances in which they became pregnant elicited in the follow up interviews were largely consistent with their previous accounts. The fact that women were as consistent as they were, after such a long time period, and following a major life event, suggests a high level of stability in women's recall and reporting of events leading to their pregnancies.

Chapter 9: Psychometric methods - a brief overview

Psychometric methods - a set of highly specialised procedures for ensuring the validity and reliability of measurement instruments - have a long history. In this chapter, I briefly discuss the origins of psychometric methods and the assumptions which underpin their use.

The origins of psychometrics

Psychometric methods developed within the discipline of psychology as a set of procedures for psychological measurement (Guilford, 1954). They built on the traditions of mental testing and psychophysics, two relatively independent branches of psychology (Guilford, 1954). Mental testing focussed on individual differences, originating from interests in nineteenth century evolutionary biology and the effect of inherited traits. Psychophysics, an extension of experimental physiology, was the specialised investigation of sensory abilities. The methods of investigation and the statistical procedures used in mental testing and psychophysics were adopted by the early psychometricians. For example, psychophysics had shown that people could perceive and make reliable judgments about physical phenomena such as the length of a line or the loudness of a sound (McDowell and Newell, 1996); psychometrics continued to use individuals' subjective judgements, but with the focus on measuring psychological constructs such as intelligence, verbal ability, and personality traits (DeVillis, 1991). Over the course of the last century psychometrics became a specialised branch of psychology with a highly developed methodology. In more recent years, psychometric methods have been extended beyond psychological constructs, most notably to aspects of health and disease and quality of life (Streiner and Norman, 1995; McDowell and Newell, 1996).

The tools produced by psychometric methods are commonly referred to as "scales", "measures" or "instruments". An individual's score on a scale is calculated from his or her responses to the items (or questions) - the most normal method being a simple summing of

item responses, i.e. the "linear model" (Nunnally, 1970). This quantification of subjective data means that an investigator can take advantage of "the many benefits that operations with numbers and mathematical thinking provide" (Guilford, 1954, p.1). Over the years, statistical procedures have been adopted or developed to determine aspects of validity and reliability of measures. These aspects of validity and reliability will be described in detail in chapter 11, providing the basis for the methods of measure development.

Levels of measurement

According to Guilford, "measurement means the description of data in terms of numbers" (1954, p.1). Psychometric methods largely employ advanced parametric statistical methods which rely on "interval" or "ratio" levels of measurement. However, many psychometric measures are made up of items which, technically, have ordinal responses (e.g. strongly agree, agree, no opinion, disagree, strongly disagree). There has been a tradition in psychometrics to treat these responses as though they were interval data (Guilford, 1954; Nunnally, 1970; Kline, 1986; Streiner and Norman, 1995; McDowell and Newell, 1996), although Guilford warns that "this does not excuse the investigator ... from being on the alert for intolerable approximations and for results and conclusions that are essentially a function of his faulty application of statistics" (1954, p.16). Psychometricians argue that, on balance, the long history of psychometrics has shown the application of parametric statistics to be valid in measure development (Guildford, 1954; Nunnally, 1970; Havlicek and Peterson, 1977).

More recently, Kline (2000) has defended the assumptions of psychometricians regarding levels of measurement. In response to a critique by Michell (1997), Kline accepts that psychological measurement is different to that of the natural sciences (particularly in its definition of variables, units of measurement, and lack of ratio scales) and therefore not "scientific" in this sense. However, Kline argues that the assumption of interval level data is crucial to the employment of psychometric methods:

> "... although it is only an assumption that the intervals of interval scales are equal it is an important, not to say critical assumption for psychometrics, since the findings in this field of psychology are based upon complex, multivariate statistical analyses which depend upon equality of intervals. Indeed psychometrics as a quantitative science would be brought to a standstill without such analyses" (Kline, 2000, p.19).

Like other psychometricians, Kline cites the coherence of psychometric findings over many years and the practical application of psychometric scales in occupational, clinical and educational settings as evidence that psychometric methods have developed "highly effective techniques of measurement which do much to produce rigorous measurement" (2000, p.21). Kline also believes that current psychometric work should continue in the applied field "since it does work better than anything else" (2000, p.21) but argues that theoretical psychometric research must change if psychometrics is to become "scientific" in the sense of the natural sciences.

In this thesis I abide by the psychometric convention of treated ordinal data as though they were interval data for the development of the measure. Where possible, I also provide the results of statistical tests designed for ordinal-level data. Once the measure is developed, I revert to standard statistical/public health practices of using only ordinal-level statistical tests for ordinal-level data.

The practical procedures of test construction

Most psychometric texts devote many chapters to the practical procedures of test construction (e.g. Guilford, 1954; Nunnally, 1970; Kline, 1986). All agree that the first step is item construction. In item construction, the items (or questions) are developed on some basis of content validity and piloted for understanding; all questions must be of a form to produce quantitative data. In chapter 10 I describe the process of item construction for the measure. Guilford (1954), Nunnally (1970) and Kline (1986) describe the next step in test construction as item analysis, where the items are administered to an appropriate target sample and psychometric criteria are used to select the most suitable items to form a valid

and reliable scale. In chapter 11 I describe the rationale and methods of item analysis, with results in chapter 12. Finally, Guilford, Nunnally, and Kline also recommend a variety of ways of examining the reliability and validity of the new measure (e.g. test-retest reliability, etc). In chapter 11, I also describe the methods for examining the reliability and validity of the new measure, with results in chapter 12.

Summary

Psychometric methods are a set of highly specialised procedures aimed at ensuring the validity and reliability of measurement instruments. These methods produce instruments (or measures or scales) which use the subjective assessments of individuals in a systematic manner to measure constructs of interest. Most psychometric analyses require interval level data, and an assumption of equal intervals is usually made. The long history of psychometrics has shown, on balance, the application of parametric statistics to be valid in measure development.

Chapter 10: Development and pre-testing of the items

The first stage in measure development is construction of the items (or questions). In this chapter, I describe the process of item development. The chapter is divided into four main parts 1) the development of the questions (explaining how and why the questions were developed in the manner they were); 2) pre-testing (outlining the pre-testing sample and the format for pre-testing); 3) changes to the measure as a result of pre-testing; and 4) the additional socio-demographic questions required for field testing.

The development of the questions

In the qualitative stage, I had developed a conceptual model of pregnancy planning/intention status (figure 7.1). My aim was to devise as many questions as were necessary to cover the six dimensions of the model.

Developing the items was an iterative process (involving GB and KW). The measure eventually evolved into the form with which I began pre-testing (appendix 12). In the rest of this section, I explain the main debates and decisions which led to this version of the measure.

Fundamentals of questionnaire design

In thinking about forming questions based on aspects of the conceptual model, I aimed to meet the standard goals of good questionnaire design, e.g., short, clear sentences with simple words where possible, strictly avoiding bad practice such as double-barrelled sentences and questions containing double negatives (Foddy, 1993; Bowling, 1997). Also, I aimed to ensure that the layout of the questions on the page was clear and easy to understand. Consequently, I used first person statements where possible, tick boxes for all answers, and instructions in bold text.

Dimension 1: Intentions

In the conceptual model, I categorised intentions as positive, ambivalent, and absent (i.e. no positive intentions). Translating the first and last positions into first person statements was straightforward, i.e. "I intended to get pregnant", and "I did not intend to get pregnant". However, I had more difficulty in finding a suitable phrase for the ambivalent position, and eventually decided on "I didn't have any particular intentions".

Dimension 2: Desire for motherhood

In the conceptual model, I categorised "desire for motherhood" as desire, no desire, and mixed feelings. This translated quite easily into the statements: "I wanted to have a baby", "I had mixed feelings about having a baby", and "I did not want to have a baby".

Dimension 3: Partner influences

In the conceptual model, the dimension of "partner influences" divided into two main elements: the partner's desire for pregnancy and the partner's agreement with the woman for her to become pregnant.

KW and I decided that the question on the partner's desire for the pregnancy should reflect the question on the woman's desire for motherhood. Thus, the three statements were: "my partner wanted me to have a baby", "my partner had mixed feelings about me having a baby", and "my partner did not want me to have a baby". At this point, we also discussed the possibility that a woman might not know her partner's desires and considered whether I should add a "don't know" category. As we thought through the issue more, we decided against this. The evidence from the qualitative work was that women either knew their partners' (stated) desires or they made assessments about their partners' desires (for example, in very brief relationships). Ultimately I was interested in women's perceptions, and therefore decided not to lose valuable information by offering a "don't know" category.

According to the qualitative findings, partner agreement was a key criterion for describing a pregnancy as "planned", and present in the situations of most women who reported positive intentions. The qualitative findings had also shown that agreements were always preceded by discussions about having a(nother) child, and that these discussions could continue, or be held in abeyance, for long periods of time (e.g. years). There were also couples who had never had any discussions. From this information, I devised three statements: "my partner and I had agreed that we would like me to be pregnant", "my partner and I had discussed having children together, but hadn't agreed for me to get pregnant", and "we never discussed having children together".

Dimension 4: Contraceptive use

In the conceptual model, the aspect of contraceptive use consisted of two elements: method of contraception and consistency of contraceptive use.

The qualitative findings had shown that women used a wide range of contraceptive methods, including natural methods such as withdrawal and safe period. My rationale was to create a question which would allow me to identify the methods, and subsequently to group women according to the "safety" or success rate of the method in normal population use (i.e. using the estimates shown in table 10.1). These estimates broadly correspond to different types of contraceptive action taken by women: no action taken (no method), a contraceptive device used/action taking during sexual intercourse (less safe methods), and contraceptive device used/action taken before or outside of sexual intercourse (safer methods). In the response options I listed eight methods as well as "no method" and "other method, please describe".

The qualitative findings had also shown that women reported using contraception consistently, inconsistently, not at all, or had experienced method failure (usually condoms). I was able to translate these categories into four statements: "I/we didn't use contraception", "I/we used contraception, but not on every occasion", "I/we always used contraception, but knew that the method had failed (i.e. broke, moved, came off, came out,

Table 10.1: Estimated pregnancy rates according to contraceptive method in first 12 months of use

Method	Pregnancy rates in first 12 months of use
Implant	1.3%
Injectable	2.5%
IUD	-
Pill	7.3%
Diaphragm	14.4%
Male condom	13.8%
Spermicides	27.0%
Withdrawal	24.1%
Safe period	24.3%
* Data from 1995 National Survey of Family Growth (Fu et al, 1999). Failure rates estimated using piecewise-constant hazards model analysis. Figures standardised for duration of use, method, age, union status, poverty status, the interaction between duration of use and method, and the interaction between age and union status.	

etc) at least once", and "I/we always used contraception". Although I felt these four categories were necessary to give women a suitable range of response options, I was concerned that the two middle categories (i.e. inconsistent use and contraceptive failure) might not be mutually exclusive in all cases, particularly as I was aware of studies showing condom breakages were not random events but related to human factors (Russell-Brown et al, 1992; Lindberg et al, 1997; Cates, 2001). For example, Lindberg et al showed that, in young men, inexperience of condom use and lower socio-economic status were associated with increased rates of condom breakage. I decided to see how these categories were answered in pre-testing before making further decisions about them.

Dimension 5: Timing of pregnancy

According to the qualitative findings, timing was not a stand alone concept but always related to other aspects of women's lives such as their life stage, relationships, and material circumstances. Therefore I decided to ask women about timing in terms of four variables: becoming a mother, their relationship, living arrangements, and money/financial situation. However, I had some difficulty in deciding on the appropriate wording. Eventually, I

decided to test three sets of response options:

1) right time,
ok, but not quite right time
wrong time

2) ideal time
ok, but not ideal time
bad time

3) just right
too soon
too late
no time would be right

The first two response sets were based on women's most usual conceptualisation of timing in the qualitative findings (i.e. timing was either right, wrong, or somewhere in between) and were intended as alternatives to each other and a way of exploring women's preferences regarding wording. The third response set was based on a slightly different conceptualisation of timing as, in the qualitative stage, three young women had described their pregnancies as occurring "too soon" in their lives.

Dimension 6: Pre-conceptual behaviours

In the conceptual model, "pre-conceptual preparations" comprised a range of activities. I was interested in whether women had carried out any activities (or the number of activities) prior to pregnancy, but were less concerned with the nature of the activities. Therefore I opted for one question which listed a range of activities (e.g. took folic acid), plus the options of "took some other action" and "none of the above". My rationale was that I could potentially analyse the variable in terms of the number of activities women carried out, i.e. none, one, and two or more.

Reference time period of the measure

Through the questions I aimed to elicit women's actions, thoughts and feelings around the time they became pregnant. In order to give women a time frame for reference when answering the questions, KW and I initially agreed on "in the month before I became pregnant...." as the lead statement to all questions, except timing. However, on reflection, we felt that we were in danger of being spuriously specific, particularly if women's thoughts or actions had existed or been carried out for a longer or shorter period of time (as the qualitative findings had shown was quite usual). Therefore I changed the statements to "around the time I became pregnant..." for the contraceptive questions and "before...." or "just before I became pregnant..." for the other questions.

Order of questions

Stack and Martin (1987, cited in Foddy, 1993) argue that respondents infer the meaning of a question from three sources: the question itself, the accompanying set of response options, and the preceding questions. Having already thought about the questions and response options, I was concerned to put the questions in the order which was most likely to enable respondents to answer in an unbiased manner. After trying the questions in various orders, I decided on positioning the contraceptive questions at the beginning (as they asked about behaviour), followed by the opinion questions, and with the pre-conceptual behaviours question last. The only acceptable position for the pre-conceptual behaviours question was last; any earlier in the order and the whole tenor of the questionnaire changed, to a more judgmental tone.

Title and instructions

I decided to entitle the set of questions "circumstances of pregnancy". This avoided the use of words such as "planned" or "unplanned" but was a broad enough description to give women some idea about the focus of the questions. I also felt the questions needed a brief introduction and instruction as to which pregnancy should be described (in the event of

more than one having been experienced):

> "Below are some questions that ask about your circumstances and feelings around the time you became pregnant. Please think of your current (or most recent) pregnancy when answering the questions below."

I also felt that the term "partner" needed some explanation otherwise women would be likely not to answer these questions if the man who had made them pregnant did not meet their definition of a "partner". Therefore, I inserted the following sentence directly before the two questions which referred to a woman's "partner":

> "In the next two questions, we ask about your partner - this might be (or have been) your husband, a partner that you live with, a boyfriend, or someone you've had sex with once or twice."

Readability

I checked the readability level of the resulting questions (i.e. the measure I began pre-testing with), as recommended by Streiner and Norman (1995), using the Flesch Reading Ease Score and the Flesch-Kincaid Grade Level Score, both American scales available in MS Word.

The Flesch Reading Ease Score rates text on a 100 point scale, the higher the score, the easier the document. The recommended level for standard documents (i.e. documents intended for general public readership) is 60 to 70. The score for the measure was 69.8.

The Flesch-Kincaid Grade Level score rates text on a U.S. grade school level, i.e. a score of 8 means an eighth grader (normally students aged 12 or 13) can understand the document. The recommended score for standard documents is 7.0 to 8.0. The score for the measure was 6.5.

Pre-testing

Pre-testing of the measure was carried out in summer 2000 by GB. The requirement was to test the items with a sample of women who reasonably matched the target group for the measure. Therefore, I ensured the pre-test sample included women continuing pregnancy, terminating pregnancy, and those who had recently given birth. The number of women included in the sample was determined by the needs of pre-testing, i.e. I stopped pre-testing when no more changes to the questionnaire were indicated. Consequently, 26 women took part in pre-testing. Table 10.2 shows the characteristics of the women. The ID numbers correspond with the order in which the interviews were carried out. The gestations of women's continuing pregnancies ranged from six to 37 weeks and the gestations of the five pregnancies about to be terminated were seven to nine weeks. The ages of the babies of "postnatal" women were three months (the four Southampton women), seven months, and over a year.

The method of pre-testing involved allowing women to filling in the questionnaire uninterrupted, then discussing with them how they arrived at their answers. This format was similar to that used by Donovan et al (1993) to test understanding of the Nottingham Health Profile.

Changes to the questions as a result of pre-testing

Changes were made to the measure as a result of pre-testing, leading to the questionnaire shown in appendix 13. This section describes the changes made.

Dimension 1: Intentions

The first indication of a problem with the question relating to intentions was with interviewee 6. She took some time over the intentions question and eventually filled in the middle option. Afterwards, she explained that her partner was keen for her to have a child,

Table 10.2: Characteristics of pre-test interviewees

Pregnancy situation + Id number	Centre	Place of interview	Age	Marital status	Number of children	Born in Britain	Ethnicity
Continuing pregnancy							
1	StG	clinic	30	cohabiting	0	✗	white
2	StG	clinic	22	single	1	✓	black
3	StG	clinic	30	single	0	✓	white
4	StG	clinic	22	cohabiting	0	✓	white
5	StG	home	42	cohabiting	2	✗	white
6	StG	clinic	37	cohabiting	0	✓	black
7	StG	home	25	cohabiting	0	✓	white
8	StG	clinic	32	married	3	✓	black
9	StG	clinic	36	married	0	✗	Asian
10	StG	clinic	39	married	2	✗	white
11	StG	clinic	37	cohabiting	2	✗	white
12	StG	clinic	17	single	0	✓	white
13	StG	clinic	19	single	0	✓	white
15	StG	home	16	single	0	✓	black
17	StG	home	30	single	0	✓	black
Abortion:							
18	Nmdx	clinic	41	single	1 (+1gc)	✗	black
19	Nmdx	clinic	33	single	1	✓	mixed
20	Nmdx	clinic	28	single	0	✗	white
21	Nmdx	clinic	24	single	0	✓	white
22	NMdx	clinic	21	single	1	✗	black
Postnatal:							
14	StG	clinic	24	cohabiting	2	✓	white
16	StG	home	40	married	6	✓	mixed
23	Soton	home	26	married	1	✓	white
24	Soton	home	24	married	1	✓	white
25	Soton	home	35	married	2	✓	white
26	Soton	home	32	cohabiting	1	✓	white

StG - St George's
Nmdx - North Middlesex Hospital
Soton - Princess Anne, Southampton
1gc - 1 grandchild

but did not want to pressure her. She had mixed feelings about motherhood and kept changing her mind about whether she wanted a baby. The result was that she and her partner would decide they would like have a baby, start trying (unprotected sex and taking folic acid), and then she would change her mind and they would stop (restart contraception, etc), only for her then to change her mind again. She also said that she thought that as she was 37 and had had no "near misses" in her life that she probably would not become pregnant, and that if she kept procrastinating long enough then it probably would never happen. She said that she had opted for the middle option of the intentions questions ("I didn't have any particular intentions") because the other two options fitted her less well, but that she did not feel this middle option was quite the right description for her situation. Given the middle option was intended to fit ambivalence such as described by this woman, I felt that it was necessary to devise a new category, "my intentions kept changing". However, I was not sure whether it should be an additional category for ambivalence or an alternative. To explore further, I tested a four-category question which included both the old and new options.

As testing continued, my doubts about the option, "I didn't have any particular intentions", continued to grow. Of the first 17 women who answered a version of this question with this option, seven ticked the option - a higher proportion than I would have expected from the qualitative findings. My suspicion that there was a problem with this option was confirmed with interviewee 17. Although this interviewee had ticked "I didn't have any particular intentions", she had been taking the pill quite consistently and did not want to have a baby. When asked why she had chosen this option, she said, "I didn't have any intentions ... I wasn't planning to get pregnant, I was planning to do my MSc". Then when asked why she chose that above the last option, "I did not intend to get pregnant", she looked at it and puzzled for a few moments and said she could have ticked it and she didn't really know why she hadn't. This confirmed my suspicion that the option was being used much more as a "no intentions" category, rather than an ambivalent category. Therefore I removed it from the question. The resulting question, in fact, was probably a better fit with the conceptual model, and worked well in the rest of the interviews.

Dimension 2: Desire for motherhood

Overall, this question was well understood and, as a result, no changes were made.

Dimension 3: Partner influences

The question on "partner agreement" was largely well understood and answered in the manner I intended. For example, one woman (interviewee 3) commented that the middle option was right for her and her partner because they had been "having discussions about discussions". Another woman (interviewee 12) explained that she had ticked this option because she and her partner wanted a baby, but not yet. Another woman, who already had two children, explained in detail why she had picked this option. The following discussion shows that the woman's situation translated into answers on the 'partner agreement' question in the manner that I hoped:

> *R:* This is the one I asked Kenny about [*after completing questionnaire, interviewee had checked partner's opinion on answer*]. I wasn't sure .. we had never, we just hadn't disc .. you know ... again, it wasn't planned so we'd hadn't talked about it. But yeah, I found that was fine. .... So the answers were fine on that.
>
> *Int:* On this question you said that you weren't thinking of having anymore. Had you made a decision not to have anymore?
>
> *R:* Well we hadn't .... I think it was a decision we had come to without talking about it, [to partner:] wasn't it?
>
> *R's partner:* Yes, as you carry on in a relationship....
>
> *R:* We hadn't sort of said, 'right, that's it'.
>
> *R's partner:* You start getting settled, you get a routine going.
>
> *R:* Our kids were older, I was going to go back to work. So we hadn't said 'no more kids', but we hadn't .... we just let the life go on, and I just assumed in the forties that's it. But no, we hadn't discussed it, we hadn't sort of made a definite decision.
>
> *R's partner:* It's sort of kind of a bit blunt.

R: No we hadn't made a .. a definite decision, otherwise I think one of us might have been sterilised or something like that. We just let it carry on, we just let life go, [to partner:] didn't we?

R's partner: Yeah, go with the flow.

R: That's why I was just asking - I didn't really know what he .. didn't really talked about it (interviewee 5).

One other woman (interviewee 10) hesitated some time over the "partner agreement", eventually ticking the first option, "my partner and I had agreed that we would like me to be pregnant". Afterwards, when asked why she had hesitated, she explained that her partner had "grudgingly agreed" to the pregnancy, and that he had thought as she was 39 it might not happen. She said that she ticked the agreement option because it was still agreement, even if grudging. This woman's explanation also fits with her other answers, i.e. "mixed feelings" on the partner's desire question, and the "right time" for all the timing questions except "your relationship" which was "ok, but not quite right time".

All women, except one, answered the question about "partner's desire for a baby" without problem. The one woman (interviewee 17) who did not complete the question said that she and her partner had never discussed having children, so she did not know what he thought.

As well as interviewee 5, two other women (interviewees 2 and 3) also asked their partners if they agreed with their answers to the partner questions. Both partners agreed.

Dimension 4: Contraceptive use

The questions about contraceptive method and consistency of use were largely well understood. However, it was apparent early on that the lead statement, "around the time I became pregnant...." was too broad. One woman (interviewee 4) took this time period to be several months, ticking both the "pill" and "no contraception" as she had stopped using the pill three months before, and another woman (interviewee 5) ticked "not using contraception" even though it was only one occasion when she and her partner did not use a condom. As a result, I changed the "around the time...." lead statement to "in the month

that I became pregnant..." to give women a better idea of the time frame I was interested in.

It also emerged in the conversation with one woman (interviewee 13) that she had thought about using emergency contraception, although subsequently not used it. After this, I removed the emergency contraception option from the question on contraceptive method, making a separate question about emergency contraception. This then allowed me three response options: "I used Emergency Contraception", "I did not use Emergency Contraception, but I thought about using it", and "I did not think about using Emergency Contraception".

I also discovered in pre-testing that three women (interviewees 15, 20, 22) ticked the option for contraceptive failure on the measure, but afterwards when being interviewed gave accounts of inconsistent contraceptive use (two of the women also saying that they did not believe anyone used contraception on every occasion). As discussed earlier, in developing the question I was concerned that the options for inconsistent use and contraceptive failure might not be mutually exclusive. Now, pre-testing had highlighted a problem of unreliable reporting on the contraceptive failure option. After discussion with KW, I still felt that option was necessary as the experiences of some women would not be adequately reflected by the other options. However, in terms of analysis, I felt that the two middle categories (contraceptive failure and inconsistent use) would have to be analysed together.

Dimension 5: Timing of pregnancy

The first problem to emerge with the timing questions was the phrase "becoming a mother (again)". "Becoming a mother" was well understood, but the brackets and the word "again" were confusing to four women (interviewees 1, 4, 6, and 7). Initially, I had added the word "again" to ensure that women who already had children felt the question was relevant to them. This did prove to be the case, but instead three women without children did not complete the question because they thought it was only for women who were mothers already. This problem was fixed by changing the phrase "becoming a mother (first time or

again)", which all women seemed to understand.

Overall, the categories of "your relationship", "becoming a mother", "living arrangements", and "money/financial situation" were well understood.

I also tested three versions of response options with the first 17 women who took part in the pre-test. The "right time" version of the question was included in the measure that women initially completed, and then afterwards, they were shown the other two versions and asked if/how they would complete them and if they had a preference for any version. The pre-test findings showed that all the women completed the "right time" version of the question, contained in the measure, without problem. Also, once presented with the three options, most women were able to express a preference. As table 10.3 shows, most preferred the "right time" version of the question. Two women (1 and 14) had equal preferences for "right time" and "ideal time" - one because she liked both the terms "ideal" and "wrong" (which were in different options), and the other because she felt the two versions were much the same. Five women specifically disliked the term "ideal", describing it as an unobtainable situation and/or a "fancy" word. Similarly, three women disliked the term "bad" because it sounded "harsh" or "awful". As can be seen in table 10.3, four women preferred the 'too soon' option set, however for three of them, this was because it allowed them to choose the option "no time would be right". The "too soon" response options were also substantially criticised by five women (interviewees 6, 8, 10, 11, and 14) who felt the options were too vague and/or did not make sense. Consequently, from interviewee 18 onwards, I tested only the "right time" response options.

Dimension 6: Pre-conceptual preparations

The main problem I encountered with the item on pre-conceptual preparations was that the phrases indicating that the question was referring to *before* pregnancy were not clear enough. Consequently, I changed the question, underlining the words "before" and "in preparation for pregnancy" in the lead statement, and making the last option clearer: "I did not do any of the above before pregnancy". After this, the question worked well with

Table 10.3: Preferences for timing question response options

	Versions of 'timing' question responses		
Interviewee	**'right time'**	**'ideal time'**	**'too soon'**
1	0	0	✗
2	✓	✗	✗
3	✓	✗	✗
4	✗	✗	✓
5	✓	✗	✗
6	✓	✗	✗
7	✗	✗	✓
8	✓	✗	✗
9	✓	✗	✗
10	✓	✗	✗
11	✓	✗	✗
12	✓	✗	✗
13	✗	✗	✓
14	0	0	✗
15	✗	✗	✓
16	✓	✗	✗
17	✓	✗	✗

✓ = clear preference 0 = joint preference ✗ = not a preference

women reporting only those actions they had taken before becoming pregnant.

Also, part way through pre-testing I added the option "sought medical/health advice". This activity had been identified in the qualitative findings; its non-inclusion had been an oversight.

Other aspects of the measure

During pre-testing I found no problems with women's understanding of the beginning instructions, the title, or the note about the meaning of the term "partner". Therefore, no changes were made.

I also found that women were usually able to complete the measure in under three minutes (some much more quickly), and most described it as "easy" (even in light of their comments outlined above).

Pre-testing also showed that women could give a range of answers, with most answering in different ways, i.e. no evidence of particular response sets.

Readability

I re-checked the readability scores of the resulting items (appendix 13). The scores had changed slightly to 64.2 on the Flesch Reading Ease Measure and the 7.5 on the Flesch-Kincaid Grade Level Score. The scores indicated that the measure was slightly more difficult than before (largely because of the explanation about emergency contraception), but were still comfortably within the acceptable level for standard documents.

Socio-demographic questions

Due to the requirements of field testing, it would also be necessary to collection socio-

demographic information about the women during field testing. Therefore, pre-testing was also an opportunity to check that these questions were clear and easy to understand. (The socio-demographic questions are shown in section two of appendix 13.)

I included questions about a woman's pregnancy situation (i.e. whether she was pregnant at the moment, outcome of last birth etc) in order to collect independent information on this. Although I would have a good idea whether a woman was continuing or terminating a pregnancy depending on which clinic we were collecting data, I would not necessarily know the gestation of her pregnancy and it was always possible to meet someone from a different clinic (e.g. a postnatal woman in an antenatal clinic). During pre-testing I found that I needed to add explanations for "live birth" and "stillbirth", but otherwise the questions were well understood.

The questions on age, number of children, and ages of children were well understood. The question which asked "Apart from children, who do you live with?" was an amalgam of two questions, one on marital status and the other about who women lived with. I had some unexpected difficulties with these questions (see appendix 14), but eventually found a version of the question which was acceptable to the women and provided me with the key minimum information that I required.

The question about whether women were in employment or not was understood and acceptable to women, apart from the phrase "a housewife and/or looking after children". After some searching, I found a more acceptable phrase, used currently by Office for National Statistics: "looking after the home or children".

I decided only to ask a broad question about the age that women left full time education, but after pre-testing had to add a subsidiary question asking whether or not women had returned to full or part-time study as a large number of women had continued in some form of further training.

The "born in Britain" question was easily understood, and during pre-testing the 2001

Census ethnicity question became available and was substituted for the 1991 question I had been using.

Although I included questions on age at leaving full time education and women's main activity, I did not include questions to elicit women's social class. The reason for this is that in the qualitative stage "social class" (as a distinct variable, rather than an amalgam of other characteristics) was not clearly or unequivocally related to particular forms of "planning" behaviour or pregnancy outcome. Given the need for clear, testable hypotheses for testing construct validity, KW and I agreed to limit the variables used in the psychometric analysis to those about which clear hypotheses could be made.

Summary

Starting with the conceptual model from the qualitative findings, I translated the dimensions into items (or questions) which could be used to collect the quantitative data necessary for psychometric analysis. I piloted the items with 26 women, using interview methods to assess understanding, and amended items as necessary throughout the process. By the end of pre-testing I had 12 items which could be clearly understood and were acceptable to a range of women.

Chapter 11: Methods of psychometric analysis and data collection

At the end of the item development stage I had 12 items which could be taken forward for item analysis. In this chapter I describe the methods for item selection and for assessing the reliability and validity of the resulting measure. The chapter is divided into five sections: 1) definitions of reliability and validity (which provide the rationale for the methods); 2) the development of a strategy for item selection; 3) methods for assessing reliability and validity of the measure; 4) the sampling strategy and methods of data collection; and 5) characteristics of the samples.

Definitions of reliability and validity

As explained in chapter three, a reliable measure is one which is relatively free of error and a valid measure is one which measures the intended construct (or concept) accurately and adequately. In psychometrics, these general concepts of reliability and validity are further specified in order to provide operational definitions which facilitate empirical testing. Validity is evaluated in terms of face validity, content validity, criterion validity and construct validity (each of which will be explained in a moment). Reliability can be evaluated in terms of internal consistency and test-retest reliability and is normally expressed in the form of a reliability coefficient. The reliability coefficient is defined as the ratio of the true score variance to the observed score variance (Dunn, 1989, p.41).Thus the reliability coefficient expresses the proportion of the total variance in the measurements which is due to "true" differences between subjects (Dunn, 1989). Internal consistency and test-retest reliability are further explained:

Internal consistency

The internal consistency of a scale is essentially a measure of the homogeneity of the items, i.e. the extent to which the items are inter-correlated and therefore measuring the same

thing (Nunnally, 1970; Kline, 1986; DeVellis, 1991). Internal consistency can be assessed by the Cronbach's alpha (Cronbach,1951), a coefficient which is the average of all possible split-half coefficients (a split-half reliability test being one in which the items are randomly divided into two sub-scales which are then correlated).

As with other sampling problems, the more items there are, the less likely that unreliability will result from measurement error. Consequently, as a general rule, longer measures are more likely to have higher reliability coefficients than shorter measures (Guilford, 1954; Nunnally, 1970; Kline, 1986) and, in some instances, the reliability of a scale can be improved by adding more homogenous items (Guilford, 1954). According to Kline (1986), 20 items are usually sufficient for reliability, and Nunnally (1970) recommends 30 dichotomous items or fewer multipoint items.

Test re-test reliability

Test-retest reliability is a measure of stability over time (providing, of course, that the construct being measured is expected to be relatively stable, e.g., intelligence, personality traits, etc). Test-retest reliability can be assessed by repeat administration of the measure to a sample and comparing individuals' first and second scores using an intra-class correlation coefficient (rather than the Pearson correlation coefficient which used to be more commonly used) (Streiner and Norman, 1995; McDowell and Newell, 1996; McGraw and Wong, 1996). The intra-class coefficient measures the similarity of the subjects' scores on the two ratings (rather than the similarity of their relative standings as with the Pearson coefficient). Hence (unlike the Pearson coefficient) if one set of scores is systematically higher than the other, the intraclass correlation will not reach 1.0 (McDowell and Newell, 1996; McGraw and Wong, 1996).

A high test-retest coefficient shows that individuals tend to remain uniform in relation to a particular construct, and a low test-retest coefficient means that they fluctuate in relation to the construct or that the measurement is affected by some other fluctuation (Guilford, 1954). Nunnally (1970) recommends that the length of time between administrations of the

measure should depend on what the test is intended to measure (i.e. a stable or dynamic trait), and warns that memory may positively affect the retest scores, particularly if the tests are close together. He believes the effect of memory is most marked if there is little time between tests, but is virtually negligible after a longer period of time, such as two months (1970, p.123). In practice today, the usual length of time between administrations for most measures is two to fourteen days (Streiner and Norman, 1995).

Face validity

The term "face validity" simply means whether or not, on the face of it, an instrument appears to be measuring what it is supposed to and it is ultimately a matter of the investigator's judgement, i.e. a subjective assessment of the presentation and relevance of items. Most psychometricians argue that face validity, in itself, is an inadequate assessment of validity (Guilford, 1954; Nunnally, 1970; Kline, 1986). Guilford, Nunnally, and Kline all argue that the main benefit of face validity is in its role in public relations, making the instrument "appear relevant to the layman who takes it or who has any administrative decisions to make concerning it" (Guilford, 1954, p.400).

Content validity

Content validity depends on whether an instrument taps all the relevant components of a construct or, as Nunnally describes, "the adequacy with which a specified domain of content is sampled" (1970, p.135). Nunnally further recommends that content validity should be part of "the plan and procedures of construction", i.e. thought about before item development (1970, p.136).

Criterion validity

One way of assessing the validity of a measure is to have a separate "criterion" by which to judge the measure's success (Guilford, 1954; Nunnally, 1970; Kline, 1986). For example, a test intended to identify type II diabetes could have a criterion measure of

clinical assessment of diabetes, or a test to predict success at university could have a criterion measure of a degree result. Validity which can be established by a criterion at the same time as the measure is administered (e.g. the diabetes example) is usually called *concurrent validity*, and a criterion which is available some time in the future is a way of establishing a measure's *predictive validity*.

Concurrent validity may also be established by the parallel use of another psychometric measure of the same construct (Nunnally, 1970; Kline, 1986; DeVellis, 1991; Streiner and Norman, 1995). Nunnally warns, however, that although high correlations between the two instruments may be comforting, they do not guarantee validity as "both tests may measure the same wrong things" (1970, p.138). In order to m nise this danger, the psychometric properties of the comparison measure should be well :umented and established, the ideal being to use a "gold standard" measure. In situations where a measure breaks new ground comparison measures may not be available.

Construct validity

The term "construct validity" was introduced by Cronbach and Meehl (1955) who noted that instruments which purported to measure constructs (i.e. variables which are abstract rather than concrete and are not easily observable in one dimension of behaviour) needed a further form of validation. They proposed that investigators generate "specific testable hypotheses" in light of what is know about a construct (1955, p.290). These hypotheses can then be tested using field data and judgements made about whether the instrument is behaving in the manner expected of the construct. Such hypothesis testing relies on a reasonable level of (theoretical) knowledge about a construct and therefore tends to be an ongoing process as new knowledge becomes available and new hypotheses are tested (Nunnally, 1970; Streiner and Norman, 1995; McDowell and Newell, 1996). (On occasions when there is strong evidence that particular groups of people exhibit high or low levels of the construct of interest, the hypothesis testing involving these groups may be referred to as "extreme" or "known"groups analysis.) McDowell and Newell argue that good validation studies state and test clear hypotheses, with justifications for why those

hypotheses are the most relevant in the light of current knowledge.

As well as hypothesis testing, a statistical method called factor analysis may be used to assess construct validity (Cattell, 1952; Nunnally, 1978). Factor analysis is based on the correlations between items and shows how some variables can be grouped together. Cattell (1952) argues that through this process it is possible to delineate new independent underlying factors which may be responsible for these groupings. Factor analysis can be used in either an exploratory or confirmatory manner (Ferguson and Cox, 1993; Kline, 1998; Dancey and Reidy, 2002). Exploratory factor analysis can be carried out at the stage of item analysis to identify underlying factors, or it can be carried out on the items selected for the final measure to assess whether underlying factor structure is similar to the one hypothesised (Ferguson and Cox, 1993). In contrast, confirmatory factor analysis is used as an exact test of new data against established models (Ferguson and Cox, 1993). In practice this means that the expected factor loadings are stated in the form of a target matrix and factor analysis is used to test the fit of the new data with the matrix (Kline, 1998).

Two other forms of validity related to construct validity are termed *discriminant validity* and *convergent validity*:

The term "discriminant" validity is used to describe a measure's absence of correlation with unrelated constructs or variables (DeVellis, 1991; Streiner and Norman, 1995). (Given that hypotheses are made about which variables should not be related to a measure, discriminant validity is essentially an aspect of construct validity.) Comparison of a new measure with a validated measure of another construct (expected to be unrelated) would form a suitable test of discriminant validity. However, in the absence of a suitable comparison measure, variables which are inherent to the individual (e.g. gender, age) and are not expected to be related to the construct of interest may be used.

"Convergent" validity is the term used to describe the covariation between two non-identical, but theoretically related, constructs. For example, according to DeVellis (1991), the constructs of anxiety and depression should have substantial overlap and therefore be

moderately correlated. However, he warns that this correlation should be less than the correlations between two depression or two anxiety measures.

The relationship between validity and reliability

Guilford (1954) and Nunnally (1970) strongly argue that a measure may be reliable (i.e. precise in its measurement) but fail to be valid (i.e. not measure its intended construct), but that in order to be valid a measure must also be reliable (i.e measure the intended construct with precision). In Nunnally's words, "high reliability is a *necessary* but not *sufficient* condition for high validity" (1970, p.107). However, some psychometricians hold another view, seeing high reliability, in the form of internal consistency, as a potential challenge to validity (Cronbach and Meehl, 1955; Kline, 1986; Boyle, 1991). These authors argue that in certain situations high internal consistency is achieved at the expense of content or construct validity, i.e. that developers choose a set of items with reference to high internal consistency, but fail to ensure that these items tap all aspects of the construct - the consequence being that the instrument is an inadequate measure of the construct.

Developing a strategy of item analysis and selection (first field test)

The purpose of item analysis is to select items which will form a scale that is reliable and valid. As the qualitative stage of the project shows, I had already paid much attention to defining the construct I was interested in, and therefore through the conceptual model had a strong basis for content validity. In translating the model into items I attempted to ensure content and face validity. Consequently, I began item analysis with 12 items based on the conceptual model of the qualitative stage. (The scoring of these items is shown in table 11.1).

As already outlined above, 12 items at the item analysis stage is relatively few in psychometric terms, and I was potentially in the position of not having enough items to form a reliable scale. Therefore, I followed Nunnally's recommendation of carrying out an

Table 11.1: Scoring of items

Question number in 12-item field test	Question number in 6-item field test	Item	Score
1	1	1) Consistency of contraceptive use not using contraception user or method failure* always used contraception ** the two middle response options representing "failure of the contraceptive method" and "failure to use contraception" are combined for analysis as pre-testing had shown women's answers not to be reliably distinct (see chapter 10).*	 2 1 0
2	not included	2) Method of contraception no contraception less safe method* safer method † ** less safe method includes: condom, diaphragm/cap, safe period, withdrawal, and other methods such as spermicide gel.* *† safer method includes: pill, injectable contraception, IUD/coil* *Categorisations are based on estimated pregnancy rates according to contraceptive methods (see table 1 of chapter 10).*	 2 1 0
3	not included	3) Emergency contraception did not think about using EC thought about using EC used EC	 2 1 0
4a	not included	4a) Timing in terms of relationship right time ok, but not quite right time wrong time	 2 1 0
4b	2	4b) Timing in terms of becoming a mother right time ok, but not quite right time wrong time	 2 1 0
4c	not included	4c) Timing in terms of living arrangements right time ok, but not quite right time wrong time	 2 1 0

Table 11.1 *continued*: Scoring of items

Question number in 12-item field test	Question number in 6-item field test	Item	Score
5	3	Intentions intended to get pregnant intentions kept changing did not intend to get pregnant	 2 1 0
6	4	6) Wanting a baby wanted to have a baby mixed feelings about having a baby did not want to have a baby	 2 1 0
7	5	7) Discussion with partner partner/woman agreed partner/woman discussed partner/woman not discussed	 2 1 0
8	not included	8) Partner wanting a baby partner wanted to have a baby partner had mixed feelings about having a baby partner did not want to have a baby	 2 1 0
9	6	9) Pre-conceptual activities prior to pregnancy 0 1 2 or more	 0 1 2

initial analysis to see if I was "in business" (1970, p.214), i.e. to check whether I had a collection of items which had the potential to form a homogenous scale. This involved examining the Cronbach's alpha and the inter-item correlations. (The inter-item correlations were calculated using Pearson's product-moment correlation coefficient, a coefficient usually used with normally distributed data, but also shown to be robust with non-normal data (Havlicek and Peterson, 1977).) My initial examination showed many of the inter-item correlations to be high, and the Cronbach's alpha to be over 0.90. On this basis I knew that I had a collection of homogeneous items.

Given that the Cronbach's alpha of this set of items was already high, it would have been possible to use the items as they stood, calling them a scale. However, my aim was to produce a short measure which could be used in survey research, and the high Cronbach's alpha indicated that there was possibly some redundancy among the items. Kline (1986) and DeVellis (1991) also recommend that scales should be as short as possible (consonant with reliability and validity) in order to minimise the burden to the respondent. Therefore, I set about devising a strategy of item analysis and selection which would allow the formation of a short, homogenous scale.

There are two main methods of item selection: item analysis and (exploratory) factor analysis. Factor analysis tends to be used in situations where there are large numbers of items and the investigator wishes to explicate the structure underlying the variables in terms of a minimal number of primary factors (Cattell, 1952; Dancey and Reidy, 2002). Given that I had a small number of items and a clear idea about the underlying structure in the form of the conceptual model, I opted for item analysis. As described by Guilford (1954), Nunnally (1970), Kline (1986), DeVellis (1991), Streiner and Norman (1995), and Loewenthal (2001), there are a series of steps in item analysis, and at each step items are considered according to various criteria. Below, I describe the steps and my interpretation of the criteria.

Missing data

Any item which has a large amount of missing data is probably being misunderstood, is offensive, or disliked in some other way and, as a consequence, is likely to be unreliable. Loewenthal (2001) recommends that items identified as having high levels of missing data should be removed. Levels of missing data thought to be a problem in psychometric studies have ranged from 5% (e.g. Hawthorne et al, 1999) to 10% (e.g. Kopec et al, 1996). I opted for the figure of 5% to assess items.

Maximum endorsement frequency

For an item to contribute to a scale, all its response options must be used, i.e. there must be a spread of answers. As Streiner and Norman (1995) explain, if most people answer in the same way then the item adds very little to the scale's psychometric properties. The recommended endorsement rates for items with dichotomous response scales (e.g. yes-no statements) range from a 95-5 percentage distribution to an 80-20 distribution (Kline, 1986; Streiner and Norman, 1995). Studies using response options of more than two points are required to adapt the recommendation. Therefore, I set a criterion of a maximum endorsement frequency of 80%, thereby eliminating any item which had a response option with more than 80% endorsement.

Internal consistency and content validity

To achieve an internally consistent scale, Guilford (1954), Nunnally (1970), and Streiner and Norman (1995) recommend calculating the item-total correlations of all the items, ranking the items according to these correlations, and then selecting items which have the highest correlations until an acceptable level of Cronbach's alpha is achieved. (An item-total correlation is the correlation of the individual item with the scale total omitting that item.) However, according to some psychometricians, this method is in danger of producing a measure which has high internal consistency but is limited in terms of content validity (i.e. there is a danger that the measure does not tap all parts of the construct as the most

homogeneous questions are selected first). Kline (1986) and Streiner and Norman (1995) also recommend that only items with item-total correlations of above 0.2 should be included, as items with correlations lower than this contribute little to the internal consistency of the scale. With these recommendations and debates in mind, I devised a four-step process which would allow both internal consistency and content validity to be addressed:

1) Calculate item-total correlations for each item.
2) Remove any item with an item-total correlation of <0.2.
3) Rank the remaining items according to the item-total correlations.
4) Starting with the lowest rank, remove questions if they correlate highly (i.e. over 0.75) with another question.

I believed that this last step would ensure a set of items tapping different aspects of the construct (thereby maximising content validity), whilst at the same time limiting the amount of item redundancy.

Deciding an acceptable level of alpha

I was also aware that my (above) strategy for internal consistency and content validity had the potential for leaving me with a reduced alpha. Therefore, I needed to consider the level of alpha I wished to achieve and how it might be reached, if necessary.

Guildford (1954) says that there are "no hard-and-fast rules" about how high the reliability coefficient should be, but argues that lower reliabilities can be tolerated in a measure for research purposes compared to a measure for the "practical purposes of diagnosis and prediction" (1954, p.388). In contrast, Nunnally offers more concrete guidance, arguing that one should be suspicious of a test with a coefficient under 0.80. He also identifies "some of the better standardized instruments" as having reliability coefficients over 0.90 (1970, p.127). Kline, who, as explained earlier, is critical of high internal consistency at the expense of content validity, accepts a lower level of alpha, recommending that most tests

should have a coefficient over 0.70 (1986, p.144). Kline also argues that lower coefficients may be acceptable for some tests, if warranted on grounds of content validity. Finally, DeVellis offers his own "personal and subjective groupings of alpha values": below 0.60, unacceptable; between 0.60 and 0.65, undesirable; between 0.65 and 0.70, minimally acceptable; between 0.70 and 0.80, respectable; between 0.80 and 0.90, very good; much above 0.90, one should consider shortening the scale (1990, p.85). However, both Nunnally and DeVellis make the point that item analysis tends to capitalise on sampling errors and can make the reliability coefficient appear better at the development stages than it might do in subsequent studies (i.e. during development, items are selected, either directly or indirectly, on the basis of their contribution to alpha and some of the apparent covariation among items may be due to chance). Therefore, both recommend that during the development stage investigators aim for alphas slightly higher than they ultimately wish to achieve. On this basis, I decided to aim for an alpha of over 0.90 as it would allow the measure to remain comfortably over 0.80 in subsequent studies. In order to achieve an alpha of over 0.90, I decided that, if necessary, I would return items to the measure (in the order they had been removed at the previous stage) until an alpha of over 0.90 was reached.

Summary of item selection strategy

After considering the criteria by which items can be assessed, my strategy for item selection contained the following steps:

1) remove items with over 5% missing data

2) remove items with a maximum endorsement frequency of 80% on any response option.

3) remove items with an item-total correlation of less than 0.2

4) rank remaining items by item-total correlation, then, beginning with lowest ranked items, remove items if they correlate over 0.75 with any remaining item

5) consider Cronbach's alpha of the remaining items and, if necessary, return items (in order of removal) until an alpha of over 0.90 is achieved.

Assessing the reliability and validity of the measure (second field test)

In order to establish the psychometric properties of the final (item-reduced) six-item measure, it was necessary to conduct a second round of field testing. (The measure is shown in appendix 15, and the scoring of the items is shown in table 11.1). In this section, I describe the methods by which I established the reliability and validity of the measure.

Initial considerations

Before beginning the analyses of reliability and validity, I needed to examine the distribution of scores to inform my choice of statistical tests, and to consider the data quality (i.e. item completion rates) with a view to imputing missing data.

The distribution of total scores is shown in figure 11.1. The distribution is negatively skewed and possibly bimodal. Transforming the data also did not make the distribution normal. (The two most likely transformations - reflect and square root (figure 11.2) and reflect and natural logarithm (figure 11.3) - in fact emphasised the bimodal nature of the data.) Given the highly non-normal distribution of the total scores, I decided to use non-parametric statistics where possible to ensure that my findings were not, as Guilford (1954) warns, the result of the "faulty application of statistics".

Although "missing data" is a criterion against which items are judged during item selection, the omission of items by respondents may still occur in subsequent testing and use of a measure. In the dataset, 97.2% of women answered all items of the measure; 17 women omitted one item, and one woman omitted two. The consequence of missing data is that a total score cannot be calculated for that individual and their case is lost to analysis. To prevent this, developers of other measures have found ways to impute missing data so that

Figure 11.1: Distribution of total scores (second field test)

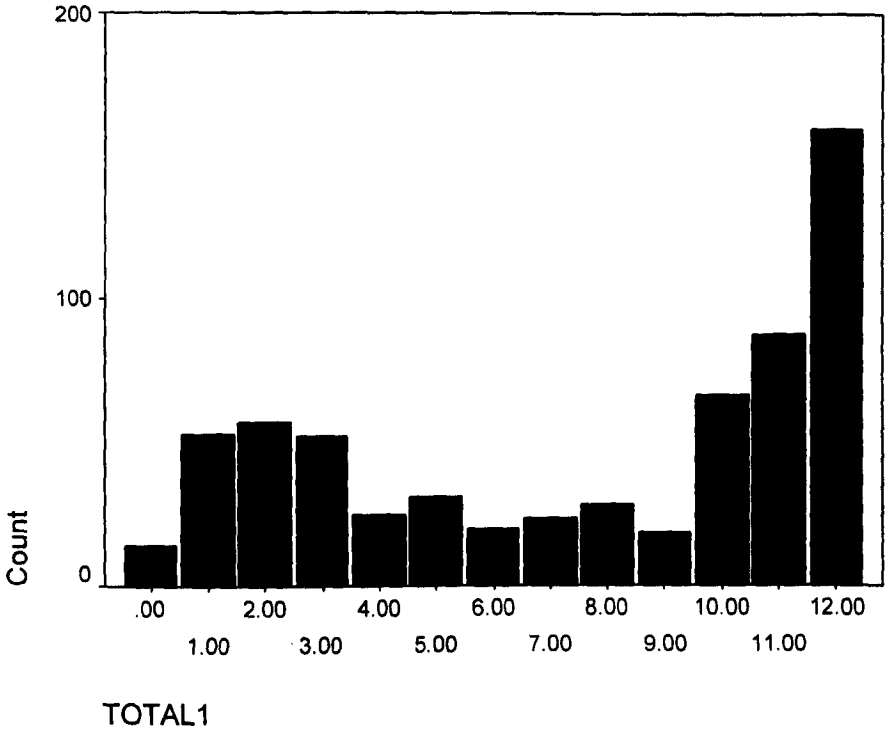


Figure 11.2: Histogram of reflect and square root transformation of score total

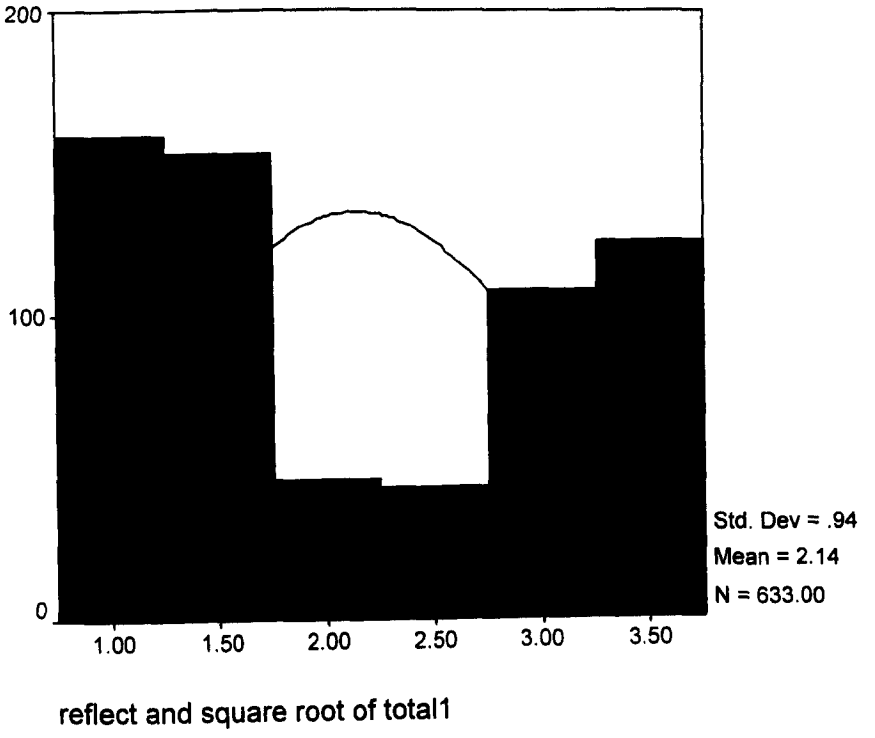


Figure 11.3: Histogram of reflect and natural log transformation of score total

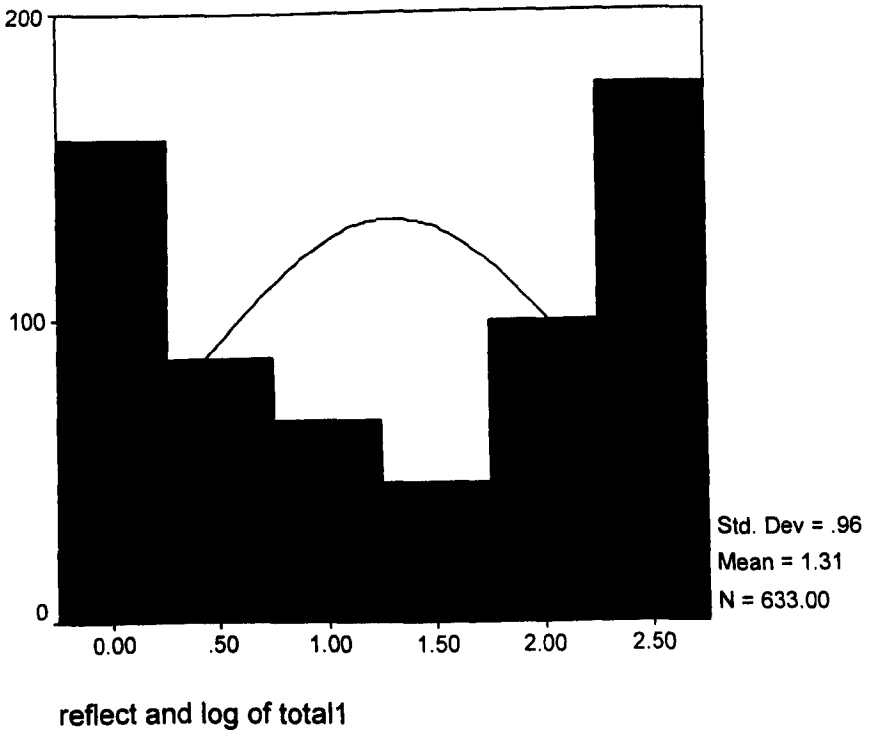


Figure 11.4: Distribution of total scores (second field test) after imputation of missing data

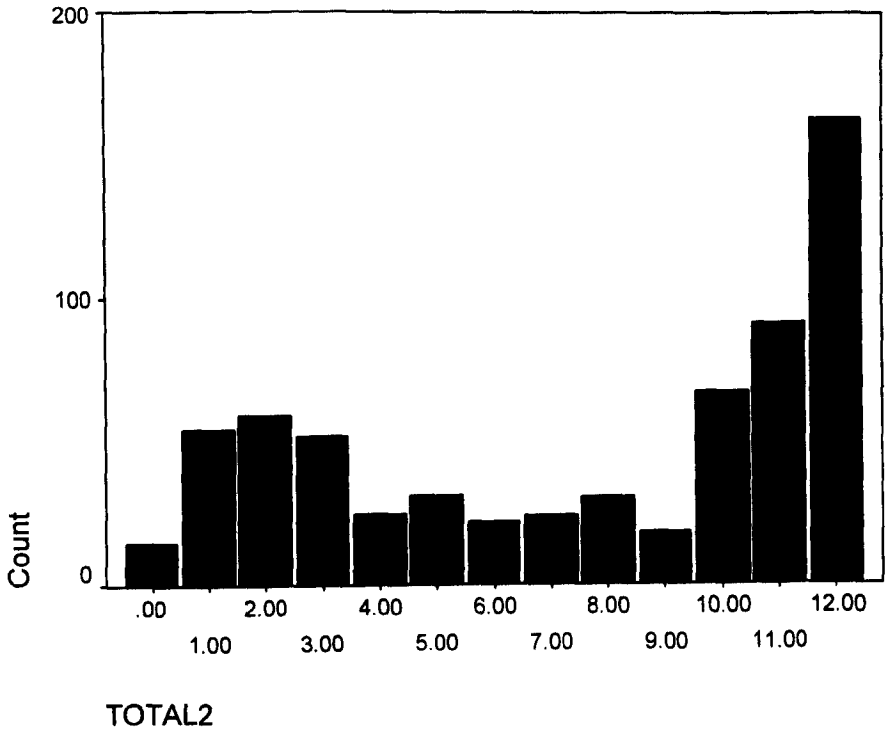


Table 11.2: Comparison of descriptive statistics for score totals before and after imputation missing data

	Total 1*	Total 2**
Mean	7.5355	7.5453
Median	9	9
Mode	12	12
Percentiles:		
25	3	3
50	9	9
75	12	12

* before imputation of missing data, 633 women included
** after imputation of missing data, 651women included

total scores can be calculated for subjects with missing data. I decided to apply the method used by the SF36, a "gold standard" measure of health status.

For the SF36, missing data may be imputed if a subject has completed at least 50% of the items of a scale (the SF36 comprises eight scales). For subjects who have completed at least 50% of items of a scale, the average score of their completed items is then imputed for the missing items of that scale, allowing a scale total to be calculated (Ware et al, 1993). Applying the SF36 method to my data meant that a score total could be calculated for all 18 women with missing data. I decided to check the effect on the data of applying this method and, reassuringly, found the score distributions (figures 11.1 and 11.4) and the descriptive statistics of the scores (table 11.2) to be virtually identical.

Internal consistency

As the Cronbach's alpha may drop in samples subsequent to the development sample, I wished to check whether this measure of internal consistency was still acceptably high with this new sample. Also, given that the measure has the potential to be used with particular age groups (e.g. teenagers being of particular policy relevance), I wished to check that reliability scores are acceptably high across age groups.

Test-retest reliability

Given that I expect the construct I am aiming to measure to be stable over time, the test-retest method to assess the reliability of the measure was appropriate. I decided to carry out two test-retests: one at a shorter period of time and one at a longer period of time. In the "short term" test-retest, women were required to complete the repeat measure seven to fourteen days after their first completion. My rationale was that this would ensure a test statistic which related to the standard time interval and would therefore be comparable with other tests. In contrast, the "long term" test-retest only included women who had completed the measure initially when they were pregnant, and then completed the repeat measure some months later, after they had had their babies. My rationale for this test-retest format was to

assess the reliability of the measure over a time period more than two months (after which Nunnally believes the effect of memory is limited) and after a significant life event. My hypothesis, based on the qualitative findings (chapter 8), was that scores between these two time points would be stable.

I measured test-retest reliability using an intraclass coefficient (one way random effects model). However, because of the non-normal data, I also decided to apply the Pearson correlation coefficient (as Havlicek and Peterson (1977) have shown it can work when normal assumptions are violated) and the weighted Kappa, a non-parametric measurement of agreement for ordinal scales. Fleiss and Cohen (1973) have shown that Cohen's weighted Kappa (using quadratic weights) is approximately equivalent to the intra-class correlation coefficient. Bowling states that an intraclass correlation coefficient of 0.80 or more indicates that the scale is highly reliable (1997, p.131). Landis and Koch (1977) suggest the following interpretation of the Kappa coefficient: below 0.0, poor; 0.00-0.20, slight; 0.21-0.40, fair; 0.41-0.60, moderate; 0.61-0.80, substantial; and 0.81-1.00, almost perfect.

Criterion validity

Criterion validity is often established by using another psychometric measure of the same construct. However, since the absence of an existing measure was the reason behind the development of a new psychometric measure, establishing (concurrent) criterion validity by this method was not an option. Similarly, there was no criterion by which I could assess the measure's predictive validity; the outcomes of pregnancy planning/intention status being as yet largely unknown and uninvestigated.

Construct validity

I decided to use two methods to assess construct validity: 1) hypothesis testing; and 2) exploratory factor analysis.

Hypothesis testing relies on some form of prior (theoretical) knowledge about a construct, and in this study I used the findings of the qualitative stage and the findings of previous published research. I formed two levels of hypotheses: 1) strong hypotheses from the qualitative findings; and 2) hypotheses from previous research, neither proved or disproved by the qualitative findings. Firstly, from the qualitative findings, I expected scores to have a particular pattern on four variables:

1) Outcome of pregnancy

Hypothesis: higher scores will be associated with continued pregnancies and lower scores with pregnancies ending in abortion.

2) Marital status

Hypothesis: "living with husband" status will be associated with higher scores, other categories associated with lower scores.

3) Age of woman

Hypothesis: older age will be associated with higher scores (although the full range of scores possible on all ages).

4) Educational status

Hypothesis: higher educational status will be associated with higher scores (although the full range of scores possible for all levels of educational status)

My second level of hypotheses were based on previous research and, although not clearly supported, were not contradicted by the qualitative findings.

5) Ethnicity/country of birth

Previous US data have suggested that black women are more likely to have unplanned pregnancies; the evidence from the qualitative data was equivocal.

6) Child order

Previous work in the UK showed that pregnancies leading to the second child were most likely to be planned, and pregnancies leading to the third or more child were most likely to be unplanned; the evidence from the qualitative data was equivocal.

The appropriate statistical tests in order to test these hypotheses were the Mann-Whitney U test, the Kruskal Wallis test, and the Jonckheere-Terpstra test. The Mann-Whitney U test is the non-parametric analogue of the two sample t test (i.e. an ordinal test variable and a dichotomous grouping variable) (Bland, 1995), and the Kruskal-Wallis test is the non-parametric analogue of one-way analysis of variance (i.e. an ordinal test variable, and nominal grouping variable of three or more categories) (Bland, 1995). The Jonckheere-Terpstra test for ordered alternatives is similar to the Kruskal-Wallis test, except that it tests the hypothesis that the groups of the grouping variable are ordered in hypothesized order of medians, from the lowest to highest or highest to lowest (i.e. an ordinal test variable, and an ordinal grouping variable of three or more categories, with the expectation of a linear relationship) (Siegal and Castellan, 1988).

To assess whether all variables of the measure related to the same construct, I used exploratory factor analysis to test the hypothesis that all variables would load onto one factor. The two techniques commonly used in factor analysis are "principal component analysis" and "principal axis factoring" (more usually referred to as principal factor analysis) (Kline, 1998; Dancey and Reidy, 2002). The techniques differ in the way that variance is dealt with; principal component analysis accounts for all the variance in the matrix, including error variance, and principal factor analysis accounts only for shared variance (Kline, 1998; Dancey and Reidy, 2002). However, it is considered that even though principal component analysis and principal factor analysis are not equivalent, their differences are relatively unimportant if the solution is stable (Kline, 1998; Dancey and Reidy, 2002). According to Dancey and Reidy (2002), principal component analysis tends to be used more for exploratory analysis. Therefore, I opted to use principal component analysis (without rotation), using standard criteria to judge factor loadings i.e. eigenvalues greater than one to extract factors, factor loadings greater than 0.3, and a model which

accounts for around 75% of the variance (Kline, 1998; Dancey and Reidy, 2002).

Discriminant validity

In identifying a measure of discriminant validity, I sought a variable which was inherent to individuals but (I expected) not related to the construct of interest. I dismissed, at an early stage, the idea of adding a psychometric measure of another construct to the existing four page questionnaire - the limited amount of time for data collection in some busy clinics being my major concern. However, I had some difficulty in identifying a variable which I believed to be unrelated to the construct. Gender was not feasible as only women were included in the study, and other easily measurable variables were potentially either directly related (e.g. age, number of children, education) or indirectly related (e.g. height via social class, eye colour via ethnicity). I considered using the day of the week on which the measure was completed, but clinics for abortions and pregnant teenagers on particular days ruled that out. Finally, KW and I agreed on a variable which we believed to be unrelated, inherent to the woman, and did not rely on her self-report: observed left or right handedness. We suspected that this variable might be of limited value but, in the absence of a more conventional choice, we decided to use it rather than carry out no test of discriminant validity. Investigating the literature on handedness, I found that the proportion of left handers is estimated to be about 10% (plus or minus 2%) in most populations (Hardych and Petrinovich, 1977; Gilbert and Wysocki, 1992; Perelle and Ehrman, 1994), including among foetuses in the womb (Hepper et al, 1991).

Convergent validity

As with a criterion measure, the measure used to establish convergent validity must have well established psychometric properties. Taking as broad a view as possible about constructs that might be theoretically related, I investigated the literature but did not find any measure which I considered suitable. One possibility I investigated initially was Miller and Pasta's (1994) Child-Timing-Questionnaire, which turned out to be entirely inappropriate. It was developed for married couples with one child already and aimed to

measure attitudes and beliefs relevant to when, or how soon, the respondent would like to have another child. Its focus on future events rather than the circumstances of the current pregnancy/recent birth, its assumption of planning behaviour, and the fact it could only be used with a subset of the sample made it an unsuitable comparison measure.

Summary of methods to assess reliability and validity

In order to establish the psychometric properties of the measure, I developed a strategy which assessed: internal consistency; test-retest reliability (short and long term), and construct validity (including discriminant validity). Tests of criterion and convergent validity were not possible because of the lack of suitable comparison scales.

Sampling strategy and data collection

In this section, I describe the sampling strategy and data collection methods used for the field tests necessary for the above analyses.

Composition of samples

The composition of the samples in psychometric field testing is vitally important in interpreting the findings of the psychometric tests (Nunnally, 1970; Kline, 1986). A sample of a more or less diverse population than that which the measure is eventually intended for will produce misleading reliability scores, as inter-item correlations may differ among particular sub-groups. Therefore, both Nunnally (1970) and Kline (1986) strongly recommend that the samples used in field testing must reflect the population for whom the test is designed. In this case, the intention was to produce a measure appropriate for use with pregnant women and recently pregnant women in Britain, regardless of the outcome of their pregnancies. Therefore the target group approximated to certain clinic populations:

pregnant - continuing pregnancy: antenatal clinics

pregnant - terminating pregnancy:	termination of pregnancy clinics
recently pregnant - live birth:	ex-obstetric patients, women attending child health clinics
recently pregnant - termination	ex-termination of pregnancy patients

The first three of the above groups presented no problem in terms of recruitment, but I was aware of a number of practical and ethical difficulties in including the last group. As we would not be able to meet this group in clinics, I would be required to post them a questionnaire at home. Yet I knew from the qualitative stage of the study that a number of women do not discuss their termination with members of their household and choose not to receive any postal information from the termination clinic. In the light of this, I felt that posting a questionnaire about pregnancy without a woman's prior permission was unacceptable and unethical. Consequently, KW and I made a decision to restrict the "recently pregnant" group to women who had taken a pregnancy to term (i.e. had not opted for abortion). In relation to how the measure may be used in future, women who have babies/children are a highly appropriate group as they have been the main subjects of previous "planning" questions and are accessible through a number of surveys (e.g. Infant Feeding Survey, National Survey of Family Growth) because of their interest to policy makers.

Sites for recruiting the samples

I had ethical approval for the following sites:

St George's, South London	(obstetrics)
Raymede/St Mary's, West London	(TOP)
Royal Infirmary, Edinburgh	(obstetrics and TOP)
Princess Anne, Southampton	(obstetrics and TOP)
District General Hospital, Salisbury	(TOP)
North Middlesex Hospital, North London	(obstetrics and TOP)

The first five of the above sites had taken part in the qualitative stage of the study. I had originally intended the sixth site, the North Middlesex, to be part of the qualitative stage but local ethical approval had not been achieved in time. Ethical approval for the North Middlesex was achieved by the quantitative stage, although eventually we only recruited from their termination clinic.

Recruiting 'recently pregnant' women from the above centres required me to send them a questionnaire as we had no way of meeting them in the clinic. Although I felt that this was an appropriate method of contact, I was worried that there might be a bias in the women who responded to the questionnaire. For instance, in previous work with St George's postnatal women, I had found that white, older, married women were more likely to respond to the questionnaire (Barrett et al, 1999, 2000) and this is a similar finding to other surveys (e.g. Glazener et al, 1995; Brown and Lumley, 1998). Therefore I decided to include some health visitor run child health clinics as a way of directly meeting women with babies. In May 2000 I approached five NHS Trusts to see if their child health services might be interested in being involved in the study. The locations and Trusts were:

St Albans, Hertfordshire	West Herts Community Trust
Manchester	Mancunian Community Health Trust
Barnsley	Barnsley Community and Priority Services NHS Trust
Newcastle	Newcastle City Health NHS Trust
Newport, Gwent	Gwent Healthcare NHS Trust

I chose these Trusts particularly to include a centre in Wales and some in the North of England. All Trusts expressed interest initially or said that they had passed my letter to appropriate colleagues. However, by October 2000 when field testing had begun I only had agreement and local ethical approval for West Herts Community Trust.

The balance of groups within the samples

My aim was to include all the sites in both field test samples, and not to have one centre

particularly dominant, thereby ensuring the sample were not just representative of one area. It was not realistic to aim for exact numbers of women from each location because of the different numbers of women passing through particular services and the resource constraints on the study (i.e. visits to clinics outside London were more expensive than inside London). One clear aim I had was to ensure that the samples had similar ratios of abortions to live births as the national population. As I expected the scores of women with live births to differ from women with abortions, the ratio of these groups in the sample had the potential to affect the reliability scores. The 1999 national figures (which were the most recent figures available in October 2000) showed that 21.8% of conceptions in England and Wales (Office for National Statistics, 2000) and 22.0% of conceptions in Scotland (General Register Office for Scotland, 2000; Information and Statistics Division of NHS in Scotland, 2000) ended in abortion. Therefore, during data collection I ensured that the proportion of abortions in the samples approximated closely to these figures.

Sample size

Very little guidance on sample size requirements for psychometric studies is available in published form, with most studies using a "rule of thumb" rather than statistical calculation. For example, Streiner and Norman recommend that the measure be field tested with a "large group" and go on to say "the meaning of 'large' is variable, but usually 50 subjects would be an absolute minimum" (1995, p.59). Nunnally recommends that there should be "at least ten times as many subjects as items" and that " five subjects per item should be considered the minimum that can be tolerated" (1970, p.214). Given that I was beginning field testing with a measure of 12 items, using Nunnally's higher recommendation, this would mean a sample size of 120 women. Finally, Streiner (1994) offers a more specific method of sample size calculation based on the magnitude of the parameter (i.e. the correlation, which is the key statistic in reliability analyses) and the desired degree of precision of the estimate. Streiner provides a sample size estimation table for Pearson's r and Spearman's rho, the estimates of which show that for correlation of 0.7 (plus or minus 0.1) a sample size of 130 is required at p=0.05 and a sample size of 222 at p=0.01. I decided to opt for Streiner's higher estimate, and therefore aimed to achieve a sample comfortably

over the size of 222 in the first round of field testing.

It would have been possible to continue to use the estimate of 222 for sample size in the second round of field testing, but I also needed to consider the size of particular subgroups of women (e.g. young women, women undergoing abortion, etc) who were important in terms hypothesis testing as part of the investigation of construct validity. For example, a sample size of 222 would include approximately 12 teenagers continuing their pregnancies and only 49 women undergoing abortion. I was concerned that there might be in danger of a Type II error (i.e. not rejecting a null hypothesis which is in fact false), and I therefore decided to increase the sample size to a minimum of 500 to ensure the validity of statistical tests carried out on subsets of the data.

The process of data collection in clinics

Data collection in clinics was by a researcher (GB, Patricia Kingori or Maya Malalgoda[1]). Fitting into the clinics and getting on with clinic staff were essential parts of the process of collecting data. Each clinic was different in terms of its practices and routines, and we simply fitted in wherever staff thought was the best "gap", usually approaching women at the point in their clinic appointment that they were waiting the longest. By the end of the first or second clinic session in each place we had usually found what worked best for the women, the staff and us. Depending on the individual clinic, the researcher (GB, PK, MM) would sit in the waiting room or a side room. At the appropriate time, the researcher would approach a woman, spending a minute or two explaining about the project and handing her the information sheet (appendix 16) and the questionnaire. The overwhelming majority of women were happy to fill in the questionnaire. On the very rare occasions a woman refused to complete the questionnaire we accepted this without fuss. Most women filled the questionnaire in there and then, although some needed to take it with them to the next part of their clinic visit (i.e into the doctor or to the scanning room) and handed it back to us before they left. The clinic sessions we attended are shown in appendix 17.

[1] PK and MM were recent Masters' graduates employed on the project on a sessional basis to assist with data collection.

On occasions (mainly in the London centres) we encountered women who spoke no English. If staff had identified them for us, then we did not approach them. Often, though, we only found out when we approached a woman and started to explain the project that she spoke no English. In this circumstance we judged the individual situation; usually they were happy not to fill it in, but sometimes were keen and had a partner who interpreted it for them. When women were keen to complete the questionnaire, we let them do so rather than cause offence.

Overall, our success in a clinic depended on our building a relationship with staff. We found that the longer we attended a clinic, the better we became personally known to the staff, and the more we were accepted as part of the clinic routine. We largely maintained a role as "good guests" - i.e. deferring to clinic staff where necessary, being assertive but not demanding in terms of gaining access to women, and providing information about the study, a thank you card and biscuits or chocolates in the staff room at the beginning or end of a series of clinic visits.

The process of postal data collection (postnatal women)

Data collection via the post was a relatively small part of the data collection process. In the first round of field testing I sent questionnaires to 14 women for whom I had names and addresses but had not needed to contact as part of the pre-testing as originally intended. In the second round of field testing I wanted a bigger sample of postnatal women, so I collected names and addresses of women who had recently delivered at St George's (the first 60 who delivered in the month of September 2000), Princess Anne in Southampton (all women who were admitted to one postnatal ward in the month of October 2000), and in Edinburgh (provided by another researcher in Edinburgh, drawn from hospital records). Each woman was sent a questionnaire, with one follow up posting for non-responders. The letters sent to women are in appendix 18. Response rates to the postal questionnaires are shown in table 11.3.

Table 11.3: Postal data collection for field tests 1 and 2

Area	Number sent	GPO returns	Response rate*	Questionnaires completed
Field test 1:				
St George's	12	0	75%	9
Southampton	2	0	100%	2
Total	*14*	*0*	*79%*	*11*
Field test 2:				
St George's	60	0	53%	32
Southampton	54	0	78%	42
Edinburgh	56	2	70%	38
Total	*170*	*2*	*67%*	*112*
* Response rates calculated from questionnaires received				

Collecting information on left or right handedness

As part of the test of discriminant validity, we collected information on women's left or right handedness. This involved the researchers observing in the clinics whether women were left or right handed and noting it on the back of the completed questionnaire. This information was collected for most women seen in clinics. Occasionally we did not note the information , either because we had forgotten to look, or the clinic was too crowded to see, or a woman had taken the questionnaire with her elsewhere and had not completed it in our view.

Repeat completion of the questionnaire

In the second round of field testing I needed to ask some women to complete the questionnaire on two separate occasions in order to establish the test-retest reliability of the questionnaire (short term and long term).

In order to post a second questionnaire to a woman, I needed her name and address and/or

her permission to send a second questionnaire. For postnatal women who returned the initial questionnaire by post, I only needed their permission to send a second questionnaire (appendix 19). For women recruited in clinics, it required them to fill in an additional sheet on the back of the questionnaire (appendix 20) giving their name and address. This was straightforward for pregnant and postnatal women. However, once again I became concerned about asking women who were about to undergo abortion for their names and addresses in light of concerns about confidentiality and the difficulties of sending material about pregnancy to women's homes. I was also concerned that initial completion of the questionnaire would be jeopardised by the inclusion of a sheet requesting identifying information. After discussion with KW and SS, I decided to exclude women undergoing abortion from the test-retest part of the study. It seems as though this was the right decision in view of the number of staff in the termination clinics who asked about the confidentiality of the questionnaire and were reassured by the fact it was anonymous.

Consequently, all women attending antenatal and child health clinics were given questionnaires with the additional sheet, and all postnatal women from St George's and Southampton. I excluded the postnatal Edinburgh women from the test-retest as I had sufficient numbers by that stage in the data collection. Of the 467 women who received the additional sheet asking them if they would consider filling in a repeat questionnaire, 340 (73%) ticked yes, 125 (27%) ticked no, and two left the form blank. Looking at the 465 who made a definite choice (yes or no), there were significant differences in response by ethnicity, number of children and area/centre (table 11.4). However, once these variables were adjusted for each other (by means of logistic regression), ethnicity was the only variable to remain significant (table 11.5). Simply, this means that women who classified themselves as 'white British' were more likely to volunteer to complete a repeat questionnaire.

Table 11.4: Factors associated with volunteering to fill in repeat questionnaire

Factor	%	(no.) volunteering to repeat	Chi square, p value
centre (n=465)			chi=8.9, P=0.03
St George's	66.7	(109)	
Southampton	72.5	(95)	
Edinburgh	76.7	(69)	
W.Herts	83.8	(67)	
age (n=463)			chi-2.7, P=0.75
<20	71.1	(27)	
20-24	66.1	(37)	
25-29	71.1	(64)	
30-34	76.2	(125)	
35-39	75.0	(72)	
40+	73.7	(14)	
live with (n=465)			chi=1.2, P=0.5
husband	74.6	(223)	
partner	72.0	(72)	
other	68.2	(45)	
country of birth (n=462)			chi=2.1, P=0.15
Britain	74.9	(272)	
elsewhere	67.7	(67)	
ethnicity (n=464)			chi=12.6, P<0.0001
white British	77.7	(262)	
other	61.4	(78)	
number of children (n=465)			chi=10.1, P=0.007
0	65.6	(99)	
1	80.8	(147)	
2 or more	71.2	(94)	

Table 11.5: Logistic regression analysis of factors associated with volunteering to complete a repeat questionnaire

Variable	Adjusted odds ratio* (95% CI)	P value
Centre		P=0.4
St George's	1.0	
Southampton	1.00 (0.57-1.73)	
Edinburgh	1.29 (0.69-2.42)	
W.Herts	1.74 (0.82-3.67)	
Ethnicity		P=0.018
white British	1.0	
other	0.55 (0.34-0.90)	
Number of children		P=0.072
0	1.0	
1	1.77 (1.05-3.00)	
2 or more	1.09 (0.63-1.88)	
* Each odds ratio adjusted for other variables in the model		

For the "short term" test-retest, questionnaires needed to be sent out a week after completion of the original questionnaire. My aim was to achieve a sample of around 100 women with a range of ages, from a range of centres. The sample size of 100 was intended to comfortably exceed the sample sizes recommended by Donner and Eliasziw (1987) for repeated observations. The covering letter for the repeat questionnaire is shown in appendix 21. Response rates are shown in table 11.6. There was no second mailing to non-responders of the repeat questionnaire because return would be too late. On return of the questionnaire, I sent women a £5 Boots voucher as a thank you.

For the "long term" test-retest, I essentially followed the same procedure as the short term test-retest except repeat questionnaires were sent out at a much later date. All women who would be expected to have delivered a baby by the beginning of July 2001 and who had not taken part in the short term test-retest were included. There were two postings, one in May and one in July 2001, with a second mailing for each. Appendix 22 shows the letter sent to women and table 11.7 shows the response rates. Again, women were sent a £5 Boots voucher on return of a completed questionnaire.

Table 11.6: Response rates for short term test-retest

Area	Pregnancy type	Number administered	Response rate	Questionnaires completed
St George's	pregnant postnatal	24 18	63% 78%	15 14
Southampton	pregnant postnatal	20 18	90% 94%	18 17
Edinburgh	pregnant postnatal	24 1*	83% 100%	20 1
W.Herts	postnatal	16	81%	13
Total:		121	81%	98
* This postnatal woman completed her initial questionnaire in the antenatal clinic				

Table 11.7: Response rates for long term test-retest

Area	Number sent	GPO returns	Questionnaires completed	Response rate*
St George's	46	0	32	70%
Southampton	36	1	26	74%
Edinburgh	39	2	32	86%
Total	121	3	90	76%
* Response rates calculated from questionnaires received				

Data management

All data were coded (as in table 1) and entered into SPSS for Windows (version 9). Both datasets (for field tests 1 and 2, including test-retest questionnaires) were cleaned and checked, firstly by looking for anomalies in the sets of frequencies, and then by a 10% random sample check.

Characteristics of the field test samples

Overall, the measure was completed by 390 women in the first field test and by 651 women in the second field test. As table 11.8 shows, the women were from a range of centres and varied in terms of age, parity, and partnership status.

Table 11.9 shows the women's pregnancy situations (i.e. pregnant, postnatal, etc). In both samples, the proportion of women completing the measure for a pregnancy which was about to end (or had ended) in abortion was close to the national figure of 22%. The second part of table 11.9 provides further detail about the women grouped in each "pregnancy situation". For instance, in the second field test sample, the "continuing pregnancy" category included three women whom I could potentially have categorised differently; all were from St George's, one had been continuing her pregnancy but had just had a miscarriage, and the other two, who were in the first trimester, were undecided as to whether they would continue or terminate their pregnancies. I felt there was not sufficient justification to put them, respectively, into the "postnatal" and "abortion" categories and therefore opted for the "continuing pregnancy" category for the purposes of analysis. As table 11.9 also shows, most women in the "abortion" category were pregnant and about to have an abortion (usually within the week). The three "recent abortion" women in the first field test were from Edinburgh and had completed their questionnaires on the medical abortion ward just after their abortion. The women who had their abortions "some time ago" were from W.Herts and St George's and all had had their abortions in the last three to five years. Of the "postnatal" women, most had a child under one year of age.

Table 11.8: Characteristics of the women in the field test samples

Variable	Field test 1 % (no.)	Field test 2 % (no.)
Centre:	n=390	n=651
St George's	32.6 (127)	25.3 (165)
Raymede	11.0 (43)	10.1 (66)
W.Herts	14.1 (55)	12.3 (80)
Southampton	12.8 (50)	22.7 (148)
Salisbury	0 (0)	4.6 (30)
Edinburgh	29.0 (113)	24.6 (160)
North Middlesex	0.5 (2)	0.3 (2)
Age:	n=385	n=648
under 20	7.0 (27)	11.8 (77)
20-24	13.5 (52)	15.6 (101)
25-29	24.4 (94)	21.0 (136)
30-34	29.6 (114)	30.1 (195)
35-39	20.8 (80)	17.7 (115)
40+	4.7 (18)	3.7 (24)
range:	14-47	14-47
Number of children:	n=388	n=651
0	37.4 (145)	37.5 (244)
1	34.8 (135)	36.1 (235)
2	19.1 (74)	17.8 (116)
3	5.7 (22)	5.7 (37)
4	2.1 (8)	1.5 (10)
5+	0.8 (4)	1.4 (9)
Who women live with:	n=387	n=651
husband	55.6 (215)	50.4 (328)
partner	20.9 (81)	19.8 (129)
husband and parents	2.6 (10)	2.0 (13)
partner and parents	1.8 (8)	2.3 (15)
parents	5.1 (20)	9.5 (62)
alone	9.5 (37)	10.0 (65)
other relatives or friends	4.1 (16)	4.3 (28)
other	0.3 (1)	1.7 (11)

Table 11.9: Women's pregnancy situations

Variable	Field test 1 %	(no.)	Field test 2 %	(no.)
Pregnancy situation:	n=390		n=651	
continuing pregnancy	63.8	(249)	47.3	(308)
abortion	18.5	(72)	22.9	(149)
postnatal	17.7	(69)	29.8	(194)
Pregnancy situation *(details)*:				
continuing pregnancy	63.8	(249)	47.3	(308)
miscarriage	-		*0.2*	*(1)*
undecided	-		*0.3*	*(2)*
abortion	18.5	(72)	22.9	(149)
pregnant, about to terminate	*17.4*	*(68)*	*22.6*	*(147)*
not pregnant, recent termination	*0.8*	*(3)*	-	
termination some time ago	*0.3*	*(1)*	*0.3*	*(2)*
postnatal	17.7	(69)	29.8	(194)
child under 1 year	*13.8*	*(54)*	*27.2*	*(177)*
child over 1 yr, but less than 2 yrs	*3.3*	*(13)*	*0.6*	*(4)*
child aged 2 or over	*0.5*	*(2)*	*2.0*	*(13)*

Table 11.10: Comparison of the age profile of the samples with national data

	Field test 1 sample	**Field test 2 sample**	**England and Wales, 1999†**
Age:	Women continuing pregnancy (n=247)	Women continuing pregnancy (n=307):	Age of mother at birth (n=621872):
	% (no.)	% (no.)	% (no.)
under 20	5.7 (14)	11.4 (35)	7.7 (48375)
20-24	10.9 (27)	14.3 (44)	17.8 (110722)
25-29	24.7 (61)	18.6 (57)	29.2 (181931)
30-34	31.6 (78)	32.2 (99)	29.8 (185311)
35-39	23.5 (58)	20.2 (62)	13.1 (81281)
40+	3.6 (9)	3.3 (10)	2.3 (14252)
Age:	Women terminating/recently terminated pregnancy* (n=71):	Women terminating pregnancy** (n=146):	Age at abortion (n=173701):
	% (no.)	% (no.)	% (no.)
under 20	15.5 (11)	24.7 (36)	21.0 (36410)
20-24	29.6 (21)	26.7 (39)	26.0 (45004)
25-29	29.6 (21)	28.1 (41)	22.2 (38492)
30-34	15.5 (11)	9.6 (14)	16.8 (29139)
35-39	5.6 (4)	8.2 (12)	10.6 (18341)
40+	4.2 (3)	2.7 (4)	3.6 (6257)

† Office for National Statistics, 2000

* excludes the one woman who had abortion sometime in last three years ** excludes the two women who had abortions in last 4-5 years

Table 11.10 shows a comparison of the age profiles of the samples with national figures for England and Wales. In the first field test sample teenagers were under-represented in both the continuing pregnancy and abortion groups, although slightly over-represented in the second field test sample. In both samples, in the continuing pregnancy group, women aged 35-39 were over-represented. These differences are largely explained by the age profiles of the centres included in the field tests.

Table 11.11 shows a comparison of the proportions of women delivering babies who were married with national figures from birth registrations for England and Wales. Overall, the proportions of mothers in the field test samples who were married corresponded to national data.

Table 11.11: Marital status of women delivering babies compared with national data from birth registrations

Age group	Field test 1		Field test 2		National data for England and Wales, 1999*	
	%	(no.) married	%	(no.) married	%	(no.) of births registered by married parents
	n=311		n=500		n=621872	
<20	0	(0)	9.8	(4)	11.0	(5333)
20-24	32.3	(10)	29.5	(18)	39.0	(43190)
25-29	63.0	(46)	66.0	(62)	66.4	(120716)
30-34	78.0	(78)	76.2	(138)	75.7	(140330)
35-39	81.6	(62)	84.5	(87)	74.4	(60470)
40+	73.3	(11)	65.0	(13)	69.8	(9944)
Total	66.6	(207)	64.4	(322)	61.1	(379983)
* Office for National Statistics, 2000						

The number of women born abroad and from an ethnic minority background are shown in table 11.12. The proportions of ethnic minority/born abroad women in the samples are quite high compared to national figures, and are largely explained by the patient populations of

the London centres and the consequent recruitment (table 11.13). (Indeed the low recruitment at the North Middlesex Hospital was due to the fact that most of the women attending their abortion clinic needed translators.) Table 11.14 shows a comparison of the proportions of women who were born in the UK compared with national data from birth registrations for England, Wales, and Scotland.

Test-retest responders

As with the main field test samples, in order to ensure that the test-retest reliability coefficients could be correctly interpreted, it was important that the sub-sample of women completing repeat questionnaires included women with a range of socio-demographic characteristics. Of the women who were asked if they would complete repeat questionnaires (who were continuing their pregnancies or had live births), women who classified themselves as "white British" were more likely to agree to take part. Of the 98 women who took part in the short term test-retest, 90 (91.8%) completed the repeat questionnaire seven to 14 days after the completing the first questionnaire. Table 11.15 shows the responders' characteristics. Compared with the second field test sample as a whole (excluding "abortion" women), women who responded between seven and 14 days were significantly more likely to be born in Britain (Fisher's exact test, p=0.029) and classify themselves as "white British" (Fisher's exact test, p=0.001).

Of the 90 women who took part in the "long term" test-retest (i.e. completing the first questionnaire whilst pregnant, and the repeat questionnaire after birth), 87 women were eligible for analysis. Two of the women who were not eligible had become pregnant again since giving birth (and therefore completed the measure with a different pregnancy in mind), and one woman was still pregnant, at 39 weeks. Table 11.16 shows the characteristics of the responders. Compared to the second field test sample as a whole (excluding "abortion" women), responders' characteristics in terms of age, partnership status, country of birth, and ethnicity were not significantly different.

Summary

The data collection strategies produced field test samples of pregnant and recently pregnant women with a range of socio-demographic characteristics. Comparison with national data showed these samples to be reasonable approximations to the wider population of pregnant women (for whom the measure is intended), and therefore suitable samples for psychometric evaluation of the measure.

I began item analysis with 12 items, relatively few in psychometric terms. Initial examination of the items indicated high homogeneity and therefore the potential for item reduction. As my aim was to produce a short measure which would be suitable for use in large scale surveys, I devised a strategy for item selection. I used standard criteria to assess the items and aimed to achieve a balance between internal consistency and content validity. In order to establish the psychometric properties of the resulting measure, I carried out further psychometric analyses. My strategies for analysis provided the means of assessing the reliability and validity of the measure in the forms of internal consistency, test-retest reliability, and construct validity.

Table 11.12: Women's place of birth and ethnicity

Variable	Field test 1 %	(no.)	Field test 2 %	(no.)
Woman's place of birth:	n=388		n=648	
Britain	73.5	(285)	77.6	(503)
Elsewhere	26.5	(103)	22.4	(145)
Ethnicity:	n=389		n=650	
white				
white British	65.0	(253)	71.7	(466)
white Irish	3.1	(12)	2.3	(15)
white other	9.5	(37)	8.9	(58)
Mixed				
mixed - white and Black Caribbean	0.5	(2)	0.6	(4)
mixed - white and Black African	0.5	(2)	0.2	(1)
mixed - white and Asian	0.5	(2)	0.6	(4)
mixed - other	0.8	(3)	0.3	(2)
Asian				
Asian - Indian	2.1	(8)	1.4	(9)
Asian - Pakistani	1.8	(7)	4.5	(10)
Asian - Bangladeshi	1.3	(5)	0.8	(5)
Asian - other	2.6	(10)	1.7	(11)
Black/Black British:				
Black Caribbean	4.4	(17)	3.5	(23)
Black African	5.4	(21)	4.0	(26)
Black other	0.3	(1)	0.3	(2)
Chinese or other				
Chinese	1.5	(6)	0.8	(5)
Other	0.8	(3)	1.4	(9)

Table 11.13: Ethnicity and country of birth by centre

Centre	Field test 1		Field test 2	
	%	(no.) classifying themselves as 'white British'	%	(no.) classifying themselves as 'white British'
St George's	49.6	(63)	47.6	(78)
Raymede	18.6	(8)	30.3	(20)
W.Herts	70.9	(39)	90.0	(72)
Southampton	88.0	(44)	85.1	(126)
Salisbury	-	-	96.7	(29)
Edinburgh	87.5	(98)	87.5	(140)
North Middlesex	50.0	(1)	50.0	(1)
	%	(no.) born in Britain	%	(no.) born in Britain
St George's	62.7	(79)	59.1	(97)
Raymede	34.9	(15)	50.0	(33)
W.Herts	80.0	(44)	93.8	(75)
Southampton	90.0	(45)	88.5	(131)
Salisbury	-	-	90.0	(27)
Edinburgh	89.3	(100)	88.0	(139)
North Middlesex	100.0	(2)	50.0	(1)

Table 11.14: Proportion of mothers born outside the UK: comparison with national data

Centre	Field test 1		Field test 2		Comparison with National Data	
	%	(no.) of continuing pregnancy/postnatal women born in UK	%	(no.) of continuing pregnancy/postnatal women born in UK	% of women with live births born in UK	(area of residence)
St George's	62.4	(78)	58.6	(95)	66	(Merton and Wandsworth, 1999)*
W.Herts	79.6	(43)	93.7	(74)	84	(St Albans, 1999)*
Southampton	90.0	(45)	88.6	(117)	>85	(Southampton, 1999)*
Edinburgh	88.5	(77)	87.3	(110)	87.7	(Edinburgh City, 2000)†
Total	76.9	(243)	79.4	(396)	85.7	(England and Wales total, 1999)*
					94.0	(Scotland total, 2000)†

* Office for National Statistics, 2000 † General Register Office for Scotland, 2001

Table 11.15: Characteristics of women taking part in the short term test-retest

Variable	%	(no.) who completed repeat questionnaire	%	(no.) who completed repeat questionnaire within 14 days
Pregnancy situation:	n=98		n=90	
cont.pregnancy	54.1	(53)	54.4	(49)
postnatal	45.9	(45)	45.6	(41)
Centre:				
St George's	29.6	(29)	30.0	(27)
W.Herts	13.3	(13)	13.3	(12)
Southampton	35.7	(35)	34.4	(31)
Edinburgh	21.4	(21)	22.2	(20)
Age:				
under 20	10.2	(10)	11.1	(10)
20-24	17.3	(17)	16.7	(15)
25-29	22.4	(22)	22.2	(20)
30-34	26.5	(26)	26.7	(24)
35-39	17.3	(17)	17.8	(16)
40+	6.1	(6)	5.6	(5)
Who women live with:				
husband	52.0	(51)	50.0	(45)
partner	21.4	(21)	22.2	(20)
husband and parents	4.1	(4)	4.4	(4)
partner and parents	2.0	(2)	2.2	(2)
parents	9.2	(9)	10.0	(9)
alone	9.2	(9)	8.9	(8)
other	2.0	(2)	2.2	(2)
Born in Britain:				
yes	85.7	(84)	86.7	(78)
no	14.3	(14)	13.3	(12)
Ethnicity:				
white British	83.7	(82)	85.6	(77)
other	16.3	(16)	14.4	(13)

Table 11.16: Characteristics of women taking part in the long term test-retest

Variable	%	(no.) who completed repeat questionnaire	%	(no.) of repeat questionnaires eligible for analysis
Pregnancy situation:	n=90		n=87	
postnatal	96.7	(87)	100.0	(87)
still pregnant	1.1	(1)	-	
pregnant again	2.2	(2)	-	
Centre:				
St George's	35.6	(32)	34.5	(30)
Southampton	28.9	(26)	28.7	(25)
Edinburgh	35.6	(32)	36.8	(32)
Age:				
under 20	8.9	(8)	9.2	(8)
20-24	3.3	(3)	3.4	(3)
25-29	15.6	(14)	16.1	(14)
30-34	44.4	(40)	44.8	(39)
35-39	24.4	(22)	23.0	(20)
40+	3.3	(3)	3.4	(3)
Who women live with:				
husband	70.0	(63)	69.0	(60)
partner	17.8	(16)	18.4	(16)
husband and parents	-		-	
partner and parents	3.3	(3)	3.4	(3)
parents	4.4	(4)	4.6	(4)
alone	2.2	(2)	2.3	(2)
other	2.2	(2)	2.3	(2)
Born in Britain:				
yes	75.6	(68)	75.9	(66)
no	24.4	(22)	24.1	(21)
Ethnicity:				
white British	76.7	(69)	77.0	(67)
other	23.3	(21)	23.0	(20)

Chapter 12: Results of psychometric analyses

In this chapter, I present and discuss the results of the psychometric analyses. The chapter is divided into three sections: 1) the item analysis and selection strategy; 2) the assessment of the reliability and validity of the measure; and 3) discussion.

Results of first field test ~ Item analysis and selection

In this section, I describe the results of the strategy for item selection based on data from the first field test with 390 women.

Missing data

As can be seen in table 12.1, no item failed the threshold of more than 5% missing data. Therefore no items were removed

Maximum endorsement frequency

Also, as can be seen in table 12.1, only one question (question 3 on emergency contraception) failed the criterion of an endorsement frequency of over 80% on any response option. Hence, question 3 was removed.

Internal consistency and content validity

Table 12.2 shows the item-total correlations for the remaining 11 questions. No item-total correlations were below 0.20, therefore no items were removed.

Ranking the questions according to their item-total correlations produced the following:

Table 12.1: Frequencies of the 12 items (first field test)

Question	%	(no.)	Score
1) Consistency of contraceptive use			
not using contraception	69.7	(272)	2
user or method failure	22.8	(89)	1
always used contraception	7.4	(43)	0
original answers:			
not using contraception	69.7	(272)	
not always using contraception	13.3	(52)	
contraceptive failure	9.5	(37)	
always used contraception	7.4	(29)	
2) Method of contraception			
no contraception	64.1	(250)	2
less safe method	24.9	(97)	1
safer method	11.0	(43)	0
original answers:			
no contraception	64.1	(250)	
condom	16.7	(65)	
pill	9.7	(38)	
injectable (or Depo) contraception	0.5	(2)	
diaphragm/cap	0.3	(1)	
IUD/coil	0.3	(1)	
safe period	2.3	(9)	
withdrawal	1.5	(6)	
condom+safe period or withdrawal	3.6	(14)	
safe period and withdrawal	0.3	(1)	
Persona (safe period)	0.3	(1)	
pill and condom	0.5	(2)	
3) Emergency contraception			
did not think about using EC	87.2	(340)	2
thought about using EC	6.2	(24)	1
used EC	2.8	(11)	0
missing	*3.8*	*(15)*	
4a) Timing in terms of relationship			
right time	65.1	(254)	2
ok, but not quite right time	18.2	(71)	1
wrong time	15.9	(62)	0
missing	*0.8*	*(3)*	
4b) Timing in terms of becoming a mother			
right time	65.9	(253)	2
ok, but not quite right time	14.4	(56)	1
wrong time	16.9	(66)	0
missing	*3.8*	*(15)*	

Table 12.1 *continued*: Frequencies of the 12 items (first field test)

Question	%	(no.)	Score
4c) Timing in terms of living arrangements			
right time	57.4	(224)	2
ok, but not quite right time	22.6	(88)	1
wrong time	17.4	(68)	0
missing	*2.6*	*(10)*	
4d) Timing in terms of money/financial situation			
right time	54.4	(211)	2
ok, but not quite right time	24.1	(94)	1
wrong time	17.7	(69)	0
missing	*4.1*	*(16)*	
5) Intentions			
intended to get pregnant	55.1	(215)	2
intentions kept changing	9.2	(36)	1
did not intend to get pregnant	35.1	(137)	0
missing	*0.5*	*(2)*	
6) Wanting a baby			
wanted to have a baby	59.2	(231)	2
mixed feelings about having a baby	19.7	(77)	1
did not want to have a baby	20.5	(80)	0
missing	*0.5*	*(2)*	
7) Discussion with partner			
partner/woman agreed	60.0	(234)	2
partner/woman discussed	25.9	(101)	1
partner/woman not discussed	12.1	(47)	0
missing	*2.1*	*(8)*	
8) Partner wanting a baby			
partner wanted to have a baby	63.1	(246)	2
partner had mixed feelings about having a baby	19.5	(79)	1
partner did not want to have a baby	15.9	(62)	0
missing	*1.5*	*(6)*	
9) Activities prior to pregnancy			
0	46.7	(182)	0
1	20.5	(80)	1
2 or more	13.8	(54)	2
missing	*0.5*	*(2)*	
original answers:			
folic acid	42.8	(167)	
stopped or cut down smoking	12.4	(48)	
stopped or cut down drinking alcohol	20.0	(78)	
ate more healthily	23.6	(92)	
sought medical/health advice	13.3	(52)	
took some other action	3.6	(14)	

Table 12.2: Item-total correlations

Question	Item-total correlations*
1	0.6369
2	0.5915
4a	0.8210
4b	0.8354
4c	0.8157
4d	0.7716
5	0.8641
6	0.8429
7	0.8498
8	0.7892
9	0.6165
*correlation of each item with the scale total omitting that item	

Table 12.3: Inter-item correlations

	q1	q2	q4a	q4b	q4c	q4d	q5	q6	q7	q8	q9
qu1	1.0										
qu2	.7924	1.0									
qu4a	.4792	.4636	1.0								
qu4b	.4998	.4228	.7811	1.0							
qu4c	.5268	.4858	.7503	.7481	1.0						
qu4d	.4328	.4164	.7458	.7064	.8317	1.0					
qu5	.6080	.5808	.7172	.7453	.6815	.6633	1.0				
qu6	.5170	.4688	.7317	.8140	.6870	.6859	.8137	1.0			
qu7	.5292	.4955	.7225	.7592	.7285	.6670	.8042	.7645	1.0		
qu8	.4807	.4395	.7025	.6934	.6784	.6303	.6976	.7259	.7824	1.0	
qu9	.4134	.3790	.5125	.5351	.4773	.4646	.6241	.5464	.5564	.5446	1.0

Rank:	Question:	Item-total:	Alpha if item deleted:
1	5	0.8641	0.9380
2	7	0.8498	0.9390
3	6	0.8429	0.9388
4	4b	0.8354	0.9391
5	4a	0.8210	0.9398
6	4c	0.8157	0.9399
7	8	0.7892	0.9410
8	4d	0.7716	0.9416
9	1	0.6369	0.9464
10	9	0.6165	0.9486
11	2	0.5915	0.9479

Overall standardised item alpha: 0.9475

Starting with the lowest rank, I considered the inter-item correlation of each question, removing the question if it correlated at >0.75 with any other question. (The full set of inter-item correlations is shown in table 12.3.)

Rank 11, question 2 (contraceptive method)
Qu2 correlates with qu1 highly at 0.7924.
Remove qu2

Rank 10, qu9 (pre-conceptual preparations)
All the inter-item correlations are between 0.4 and 0.6
Keep qu9

Rank 9, qu1 (consistency of contraceptive use)
Inter-item correlations with the remaining items are all between 0.4 and 0.6.
Keep qu1

Rank 8, qu4d (timing/money-financial)

Correlation of 0.8317 with qu4c (timing-living arrangements)

Remove qu4d

Rank 7, qu8 (partner wanting)

Correlation of 0.7824 with qu7 (partner agreement)

Remove qu8

Rank 6, qu4c (timing/living-arrangements)

Correlation of 0.7503 with qu4a (timing-your relationship)

Remove qu4c

Rank 5, qu4a (timing-your relationship)

Correlation of 0.7811 with qu4b (timing-become a mother).

Remove qu4a.

Rank 4, qu4b (timing-becoming a mother)

Correlation of 0.8140 with qu6 (wanting pregnancy) and correlation of 0.7592 with qu7 (partner agreement).

Remove qu4b

Rank 3, qu6 (wanting pregnancy)

Correlation of 0.8137 with qu5 (intentions) and correlation of 0.7645 with qu7 (partner agreement).

Remove qu6

Rank 2, qu7 (partner agreement)

Correlation of 0.8042 with qu5 (intentions).

Remove qu7

Rank 1, qu5 (intentions)

No correlation of >0.75 with any of the remaining questions

Keep qu5

This process left three questions:

qu1 (originally rank 9)

qu5 (originally rank 1)

qu9 (originally rank 10)

Alpha for these three questions is 0.7835

Level of Cronbach's alpha

As I had anticipated might be possible, the process of the above left me with a reduced alpha. Therefore, in order to achieve an alpha of above 0.90, I returned questions one at a time, starting with the highest ranked (or last removed) question:

Add in rank 2 question - qu7 (partner agreement)

qu1 (originally rank 9)

qu5 (originally rank 1)

qu7 (originally rank 2)

qu9 (originally rank 10)

Alpha for these four questions is 0.8508

Add in rank 3 question - qu6 (wanting pregnancy)

qu1 (originally rank 9)

qu5 (originally rank 1)

qu6 (originally rank 3)

qu7 (originally rank 2)

qu9 (originally rank 10)

Alpha for these five questions is 0.8893

Add in rank 4 question - qu4b (timing - becoming a mother)

qu1 (originally rank 9)

qu4b (originally rank 4)

qu5 (originally rank 1)

qu6 (originally rank 3)

qu7 (originally rank 2)

qu9 (originally rank 10)

Alpha for these six questions is 0.9129

Summary of item selection strategy

Through the above process of item selection I moved from 12 questions with a high alpha (in the initial analysis), to six questions still with an alpha of above 0.90. A summary of the process is shown in table 12.4.

Table 12.4: Summary of application of item selection strategy

Step	Criteria	Questions removed/added
1)	Missing data over 5%	-
2)	Maximum endorsement frequency of 80% on any response option	question 3 (emergency contraception) removed
3)	Item-total correlations <0.2	-
4)	Ranked item-total correlations/inter-item correlations of above 0.75	questions 2, 4a, 4b, 4c, 4d, 6, 7, and 8 removed
5)	Cronbach's alpha >0.9	questions 4b, 6 and 7 added

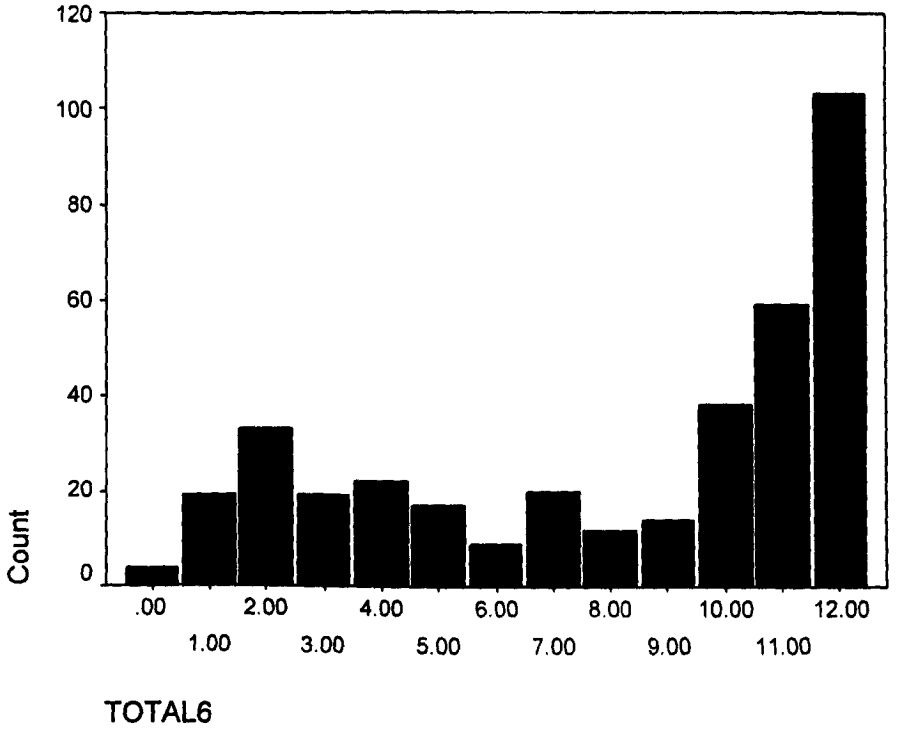
The resulting six-item measure

Comparing the resulting six-item measure with the conceptual model (see figure 7.1) showed that content validity had been retained, with one question representing each of the six dimensions of the model.

The readability level of the six-item measure was 70.4 according to the Flesch Reading Ease Measure and 6.7 on the Flesch-Kincaid Grade Level Score. The scores indicated the six-item measure was slightly easier than the 12-item measure I began field testing with, and was comfortably within the acceptable level for standard documents.

According to Guilford (1954), Nunnally (1970) and Kline (1986) a measure must produce a spread of scores if it is to be an effective measure. On the six-item measure women could achieve any one of 13 possible scores between zero and 12. The distribution of scores for the first field test population is shown in figure 12.1. Notably, all scores are represented.

Figure 12.1: Total scores of six-item measure



Results of second field test ~ Assessment of reliability and validity

In this section, I present the findings of the tests to establish the reliability and validity of the measure based on data from the second field test with 630 women.

Internal consistency

The Cronbach's alpha for the measure was 0.9203. The alphas for each age group are shown in table 12.5; all were above 0.80.

Table 12.5: Cronbach's alpha statistic by age group

Age group	Cronbach's alpha	Number of subjects
<20	0.8082	74
20-24	0.8814	99
25-29	0.9270	129
30-34	0.9068	191
35-39	0.9152	115
40+	0.9463	23

Test-retest reliability (short term)

Table 12.6 shows women's scores at both time points: 64 women (71.1%) had the same score in both tests; 21 women (23.3%) had a score in their second test that was within one point of their original score; and five women (5.6%) had a score in their second test that was more than one point away from their original score. The intraclass correlation coefficient for these data was 0.9743, the Pearson correlation coefficient was 0.974, and the weighted kappa was 0.974.

Table 12.6: Short term test-retest scores

Score at time 2	Frequencies												
12												2	**26**
11											1	**10**	8
10								1		1	**4**	2	
9										**1**			
8					1				**1**				
7								**3**	1				
6							**4**	1					
5					1	**5**	1	1	1				
4				2	**1**								
3			1	**4**									
2			**1**										
1		**2**		1									
0	**2**												
	0	1	2	3	4	5	6	7	8	9	10	11	12
	Score at time 1												

Test-retest reliability (long term)

Most of the women taking part in the long term test-retest completed the repeat measure over five months after completing the initial measure (table 12.7). At the time of the repeat completion, the ages of women's babies ranged from under one month to six months.

Table 12.8 shows women's scores at both time points: 45 women (51.7%) had the same score in both tests; 29 women (33.3%) had a score in their second test that was within one point of their original score; and 13 women (14.9%) had a score which was more than one point away from their original scores. The intraclass correlation coefficient for these data was 0.8655, the Pearson correlation coefficient was 0.864, and the weighted kappa was 0.8641.

Examination of the three women whose scores had changed most (i.e. by more than three points) showed that all had reported more ambivalent positions at time 2 (see table 12.9 for item responses). Of these women, one also explained in her second questionnaire that her circumstances had changed significantly in the interim with her husband leaving.

Construct validity

All seven hypotheses regarding the expected behaviour of the measure were met:

1) Outcome of pregnancy: Figure 12.2 shows the distribution of scores by outcome of pregnancy (the "continuing pregnancy" and "postnatal" categories are combined to form "continued pregnancies"). As hypothesised, pregnancies ending in abortion had significantly lower scores than continued pregnancies (table 12.10).

2) Marital status: Figure 12.3 shows the distribution of scores according to whether women lived with their husband, partner, or other. As hypothesised, the pregnancies of women

Table 12.7: Long term test-retest: length of time between completion of initial and repeat measures

Time since first questionnaire		Number of women	
days	approximate months	%	(no.)
90-119 days	4th month	3.4	(3)
120-149 days	5th month	11.5	(10)
150-179 days	6th month	43.7	(38)
180-209 days	7th month	14.9	(13)
210-239 days	8th month	21.8	(19)
240+ days	over 8 months	4.6	(4)

Table 12.8: Long term test-retest scores

Score at time 2	Frequencies												
12												5	**22**
11											4	**10**	4
10								2	1	**6**	2	1	
9							1	2	**1**	1		1	
8						1	2	**1**					
7				1			**3**	1		1			
6						1						1	
5					1	**1**							1
4				3	**1**	2	2						
3						1							
2													
1													
0													
	0	1	2	3	4	5	6	7	8	9	10	11	12
	Score at time 1												

Table 12.9: Item responses from women with most changed scores in long term test-retest

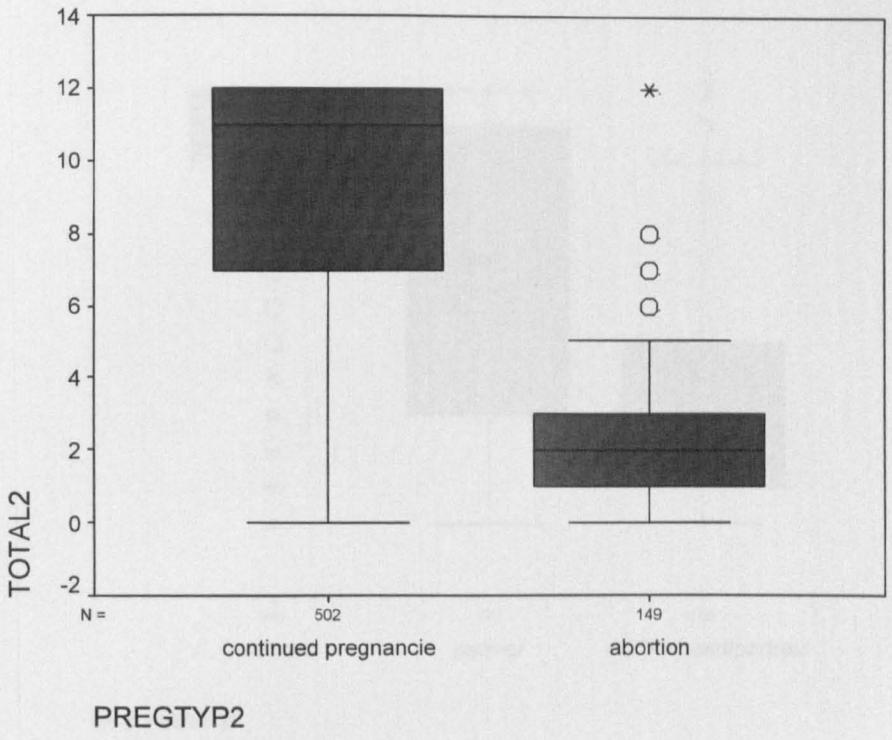
	Time 1		Time 2	
	3352: 27years, living with partner		***3352:*** 27 years, living with partner	
qu1	2	no contraception	1	partial contraceptive use
qu2	2	right time	1	ok ... time
qu3	2	intended	1	mixed intentions
qu4	2	wanted baby	1	mixed feelings
qu5	2	partner agreed	1	partner discussed
qu6	2	3 actions	0	no actions
Total score:	***12***		***5***	
	3451: 32 years, living with husband		***3451:*** 32 years, living alone	
qu1	2	no contraception	2	no contraception
qu2	2	right time	1	ok ... time
qu3	2	intended	1	mixed intentions
qu4	2	wanted baby	1	mixed feelings
qu5	2	partner agreed	1	partner discussed
qu6	1	1 action	0	no actions
Total score:	***11***		***6***	
	3346: 17 years, living with partner		***3346:*** 18 years, living with partner	
qu1	1	partial contraceptive use	1	partial contraceptive use
qu2	0	wrong time	1	ok ... time
qu3	0	not intended	1	mixed intentions
qu4	1	mixed feelings	2	wanted baby
qu5	1	partner discussed	1	partner discussed
qu6	0	no actions	1	1 action
Total score:	***3***		***7***	

qu1 - contraceptive use; qu2 - timing; qu3 - intentions; qu4 - desire for motherhood; qu5 - partner agreement/discussions; qu6 - pre-conceptual actions

Table 12.10: Findings of construct validity significance tests (part 1)

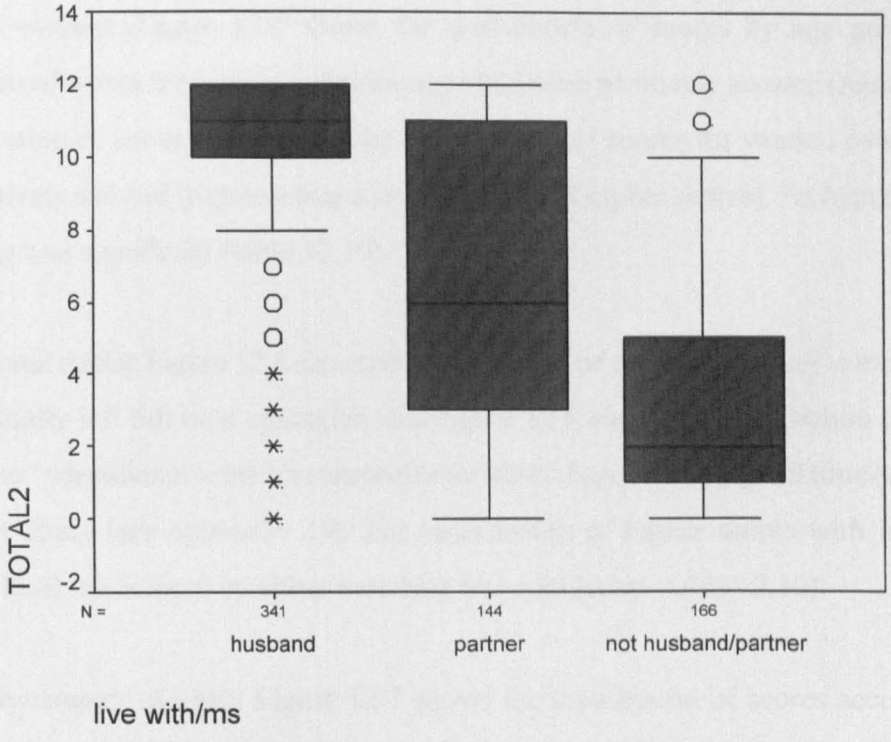
Variable	Mean rank	Significance test and p value
Pregnancy outcome:		
continued pregnancy	393.53	Mann-Whitney U, p<0.0001
abortion	98.48	
Marital status/live with:		
husband	431.83	Kruskal-Wallis, p<0.0001
partner	283.25	
not husband or partner	145.68	
Age group:		
<20	154.90	Kruskal-Wallis, p<0.0001
20-24	240.18	Jonckheere-Terpstra, p<0.0001
25-29	307.57	
30-34	398.96	
35-39	397.37	
40+	365.29	
Educational status:		
Age left full time education:		
still in education	119.89	Kruskal-Wallis, p<0.0001
16 or under	285.86	Jonckheere-Terpstra, p<0.0001
age 17	334.07	
age 18	323.08	
age 19	376.76	
age 20	306.40	
age 21 or over	407.11	
Approximate educational level:		
school	278.92	Kruskal-Wallis, p<0.0001
post 16	297.97	Jonckheere-Terpstra, p<0.0001
higher/further	367.32	

Figure 12.2: Scores by pregnancy outcome



N.B Each category is represented by a box and whisker plot. The horizontal line in the middle box represents the median of the sample, and the edges of the box mark the 25th and 75th percentiles. The length of the box, called the "hspread", corresponds to the interquartile range. The whiskers, the vertical lines extending up and down from each box, show the range of values that fall within 1.5 hspreads of the box. The circles represent outliers, i.e. more than 1.5 hspreads from the box, and the star represents an extreme value, i.e. more than three hspreads from the box.

Figure 12.3: Scores by marital status



living with their husbands had significantly higher scores than those of women living in other situations (table 12.10).

3) Age of woman: Figure 12.4 shows the distribution of scores by age group. The distributions of scores for women under the age of 25 were positively skewed (representing a concentration of lower scores), and the distributions of scores for women over age 25 were negatively skewed (representing a concentration of higher scores). As hypothesised, this finding was significant (table 12.10).

4) Educational status: Figure 12.5 shows the distribution of scores according to the age that women initially left full time education, and figure 12.6 shows the distribution of scores according to "educational level", a composite variable of age of leaving full time education and further study (see appendix 23). The relationship of higher scores with increased education level (as defined by either variable) was significant (table 12.10).

5) Ethnicity/country of birth: Figure 12.7 shows the distribution of scores according to whether women were born in Britain or elsewhere. The differences between these two groups were not significant (table 12.11). However, the differences between women who classified themselves as "White British" and those who did not were significant (figure 12.8 and table 12.11). In order to explore ethnicity further, I also tested the association with ethnicity using the variable's main grouping (i.e. White British, White other, Asian or Asian British, Black or Black British, and a small group comprising "mixed" and "other"). Figure 12.9 shows the distributions of scores according to the main ethnic groupings. All groups had scores which were negatively skewed, except the "Black or Black British" group whose scores were positively skewed. This finding was also significant (table 12.11).

6) Child order: Figure 12.10 shows the distribution of scores by child order (i.e. excluding pregnancies ending in abortion, which is comparable to Cartwright's previous research). Pregnancies leading to a second child had the highest scores, followed by pregnancies leading to the first child, with pregnancies leading to the third or more child with the lowest

Figure 12.4: Scores by age group

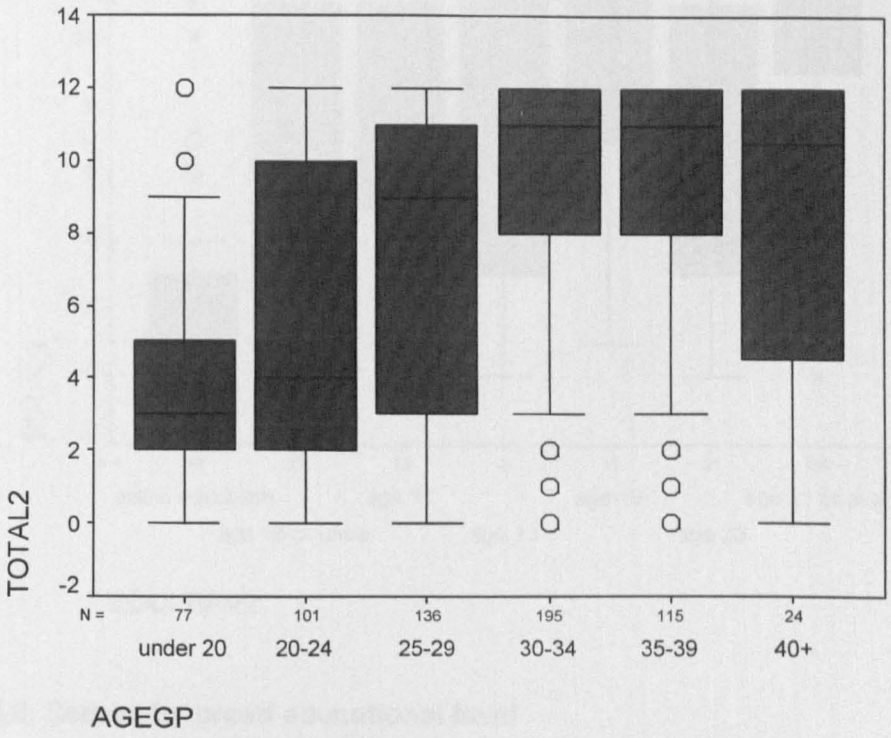


Figure 12.5: Scores by age left full time education

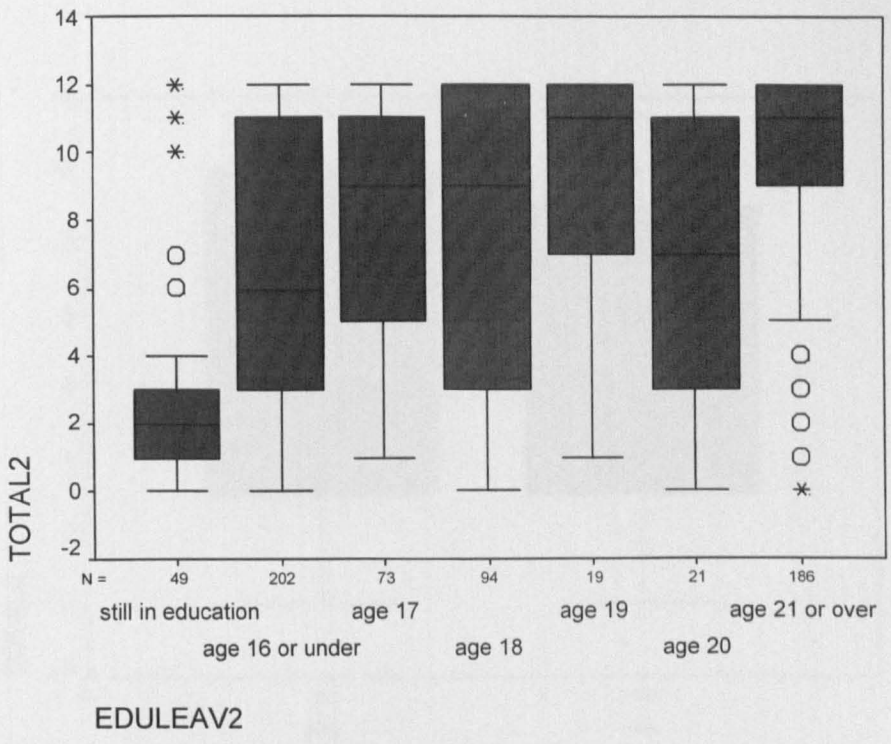


Figure 12.6: Scores by broad educational level

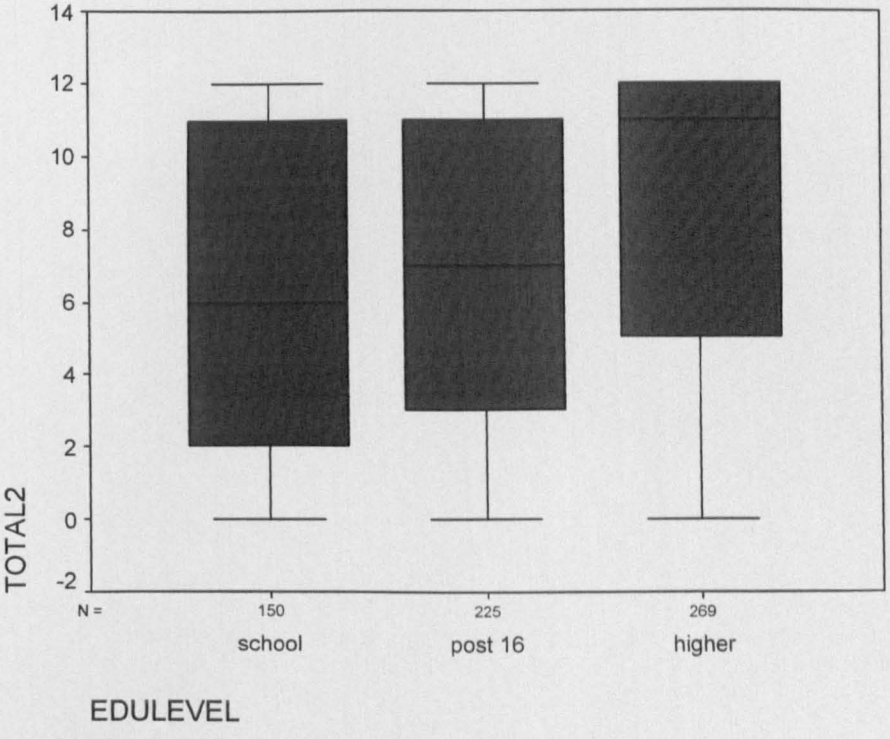


Figure 12.7: Scores by country of birth (Britain or outside Britain)

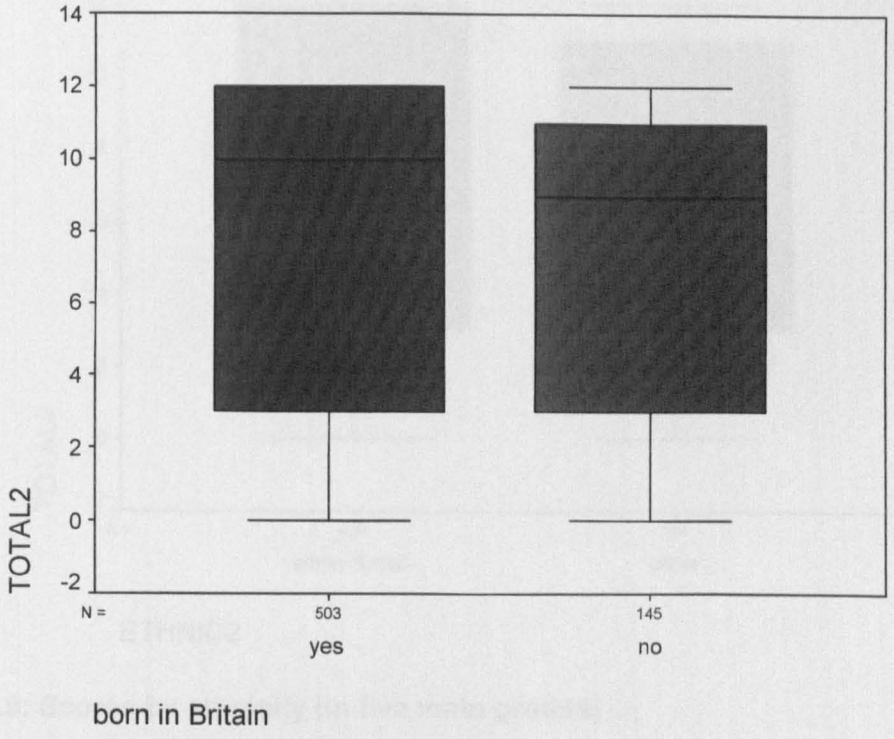


Figure 12.8: Scores by ethnicity (White British and non-White British)

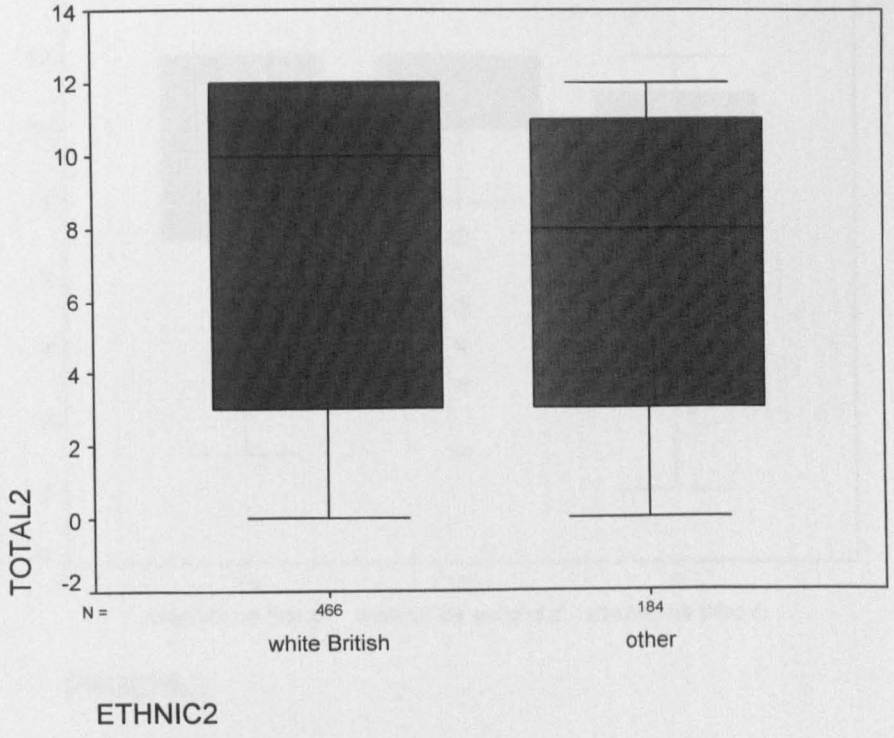


Figure 12.9: Scores by ethnicity (in five main groups)

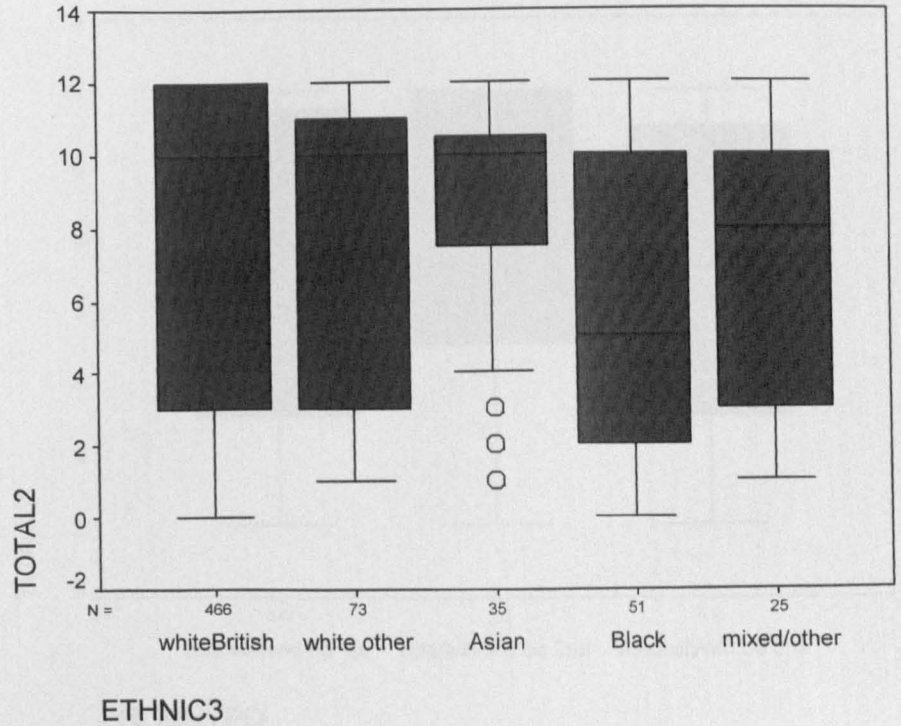


Figure 12.10: Scores by child order (continued pregnancies only)

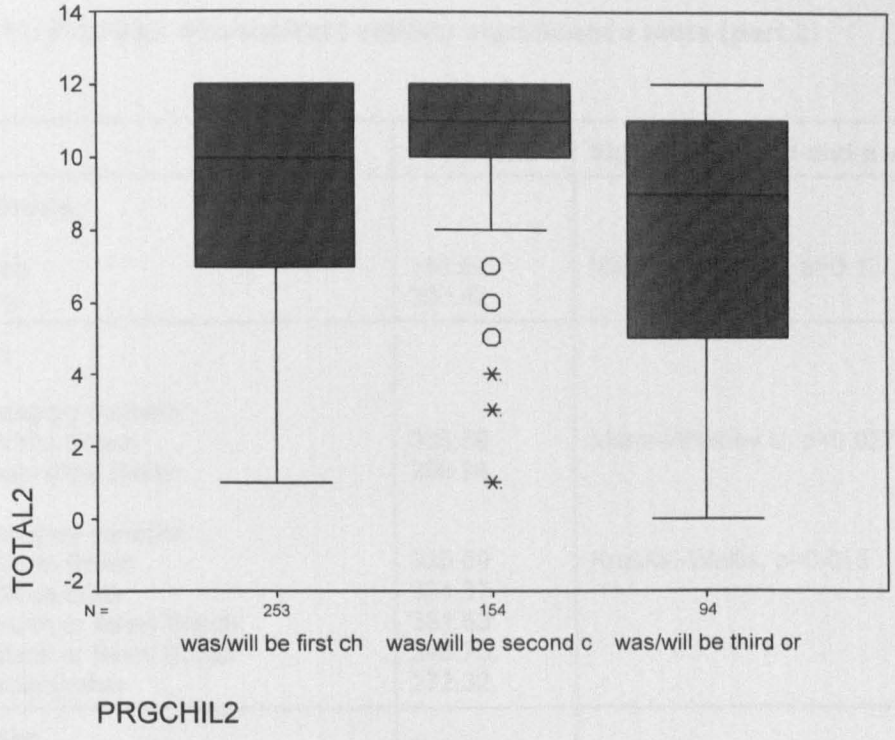


Figure 12.11: Scores by child order (actual and hypothetical)

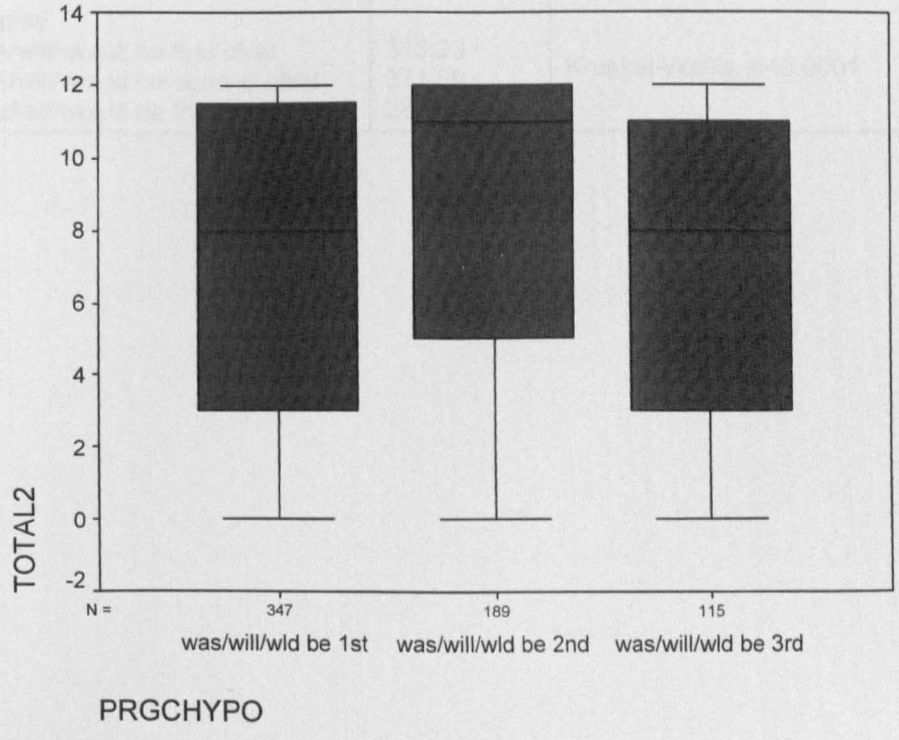


Table 12.11: Findings of construct validity significance tests (part 2)

Variable	Mean rank	Significance test and p value
Born in Britain:		
yes	330.58	Mann-Whitney U, p=0.12
no	303.42	
Ethnicity:		
As two category variable:		
White British	335.59	Mann-Whitney U, p=0.027
non-white British	299.94	
As five-category variable:		
White British	335.59	Kruskal-Wallis, p=0.013
White other	331.37	
Asian or Asian British	331.63	
Black or Black British	246.75	
Mixed/other	272.32	
Child order:		
Continued pregnancies only:		
was/will be first child	251.09	Kruskal-Wallis, p<0.0001
was/will be second child	283.62	Jonckheere-Terpstra, p<0.122
was/will be third or more child	197.32	
All pregnancies:		
was/will/would be first child	313.23	Kruskal-Wallis, p<0.0001
was/will/would be second child	371.59	
was/will/would be third child	289.61	

scores. The differences between these distributions were significant (table 12.11) (although not according to the Jonckheere-Terpstra test as the association was not linear). Figure 12.11 shows the same data but also includes pregnancies ending in abortion, thereby showing the actual birth order of continued pregnancies and the hypothetical birth order of pregnancies which ended in abortion. The distributions change, mainly by each category gaining a wider spread of scores, and the distributions of the first and third-plus child becoming more similar. This variable was, however, still significant (table 12.11).

Overall, all the hypotheses intended to test the construct validity of the measure were supported. In summary, the variables for which scores varied significantly were: outcome of pregnancy, marital status, age, educational level, child order, and ethnicity.

The second part of the strategy to establish construct validity was exploratory factor analysis, testing the hypothesis that all variables of the measure would load onto one factor. The results confirmed that there was only one factor with an eigenvalue greater than one. All six variables loaded onto the factor (eigenvalue 4.33), accounting for 72% of the variance. The factor loadings of each variable are shown in table 12.12. (Almost identical results were achieved using principal factor analysis.) These findings suggest that all variables of the measure are, indeed, relating to one construct.

Table 12.12: Factor matrix of factor loadings

Variables	Factor loadings*
qu1	0.702
qu2	0.897
qu3	0.932
qu4	0.904
qu5	0.885
qu6	0.751
Extraction method: principal component analysis * only one factor extracted	

I ascertained the handedness of 519 (79.7%) women. Of these, I observed 41 (7.9%) to be left handed. Figure 12.12 shows the distributions of scores according to handedness. The differences between these two groups were not significant (Mann-Whitney U test, p=0.41). However, although not significant, the medians in figure 12.12 seem to be quite different. This was accounted for by the different proportions of pregnancies ending in abortion in each of the two groups: right handers, 26.2%; left handers, 41.5%. Once outcome of pregnancy was taken into consideration, the distributions also appeared similar (figure 12.13).

Figure 12.12: Scores by left or right handedness

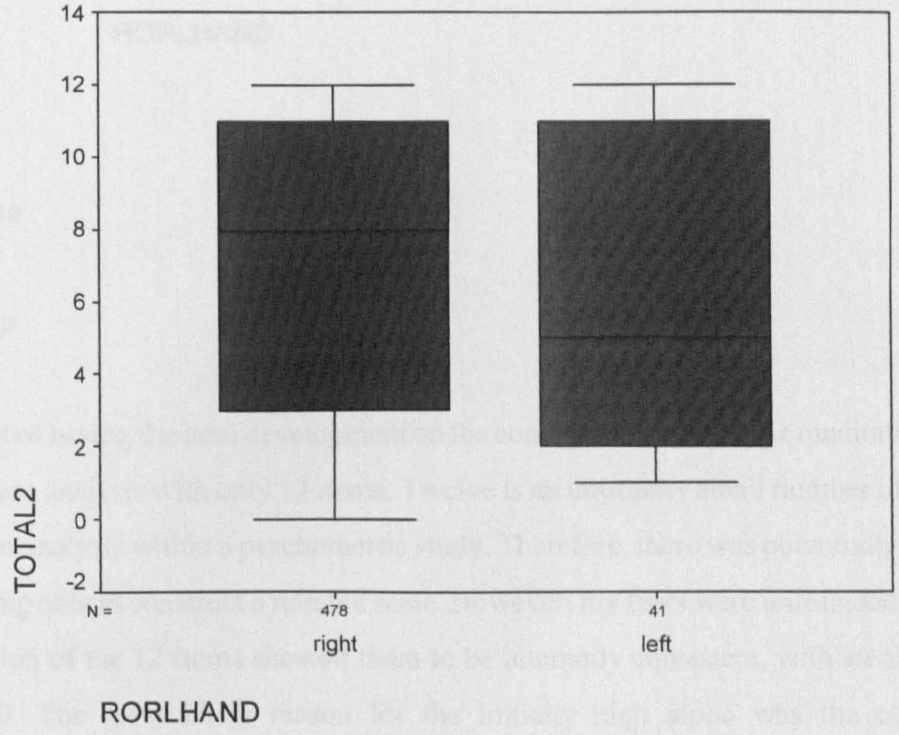
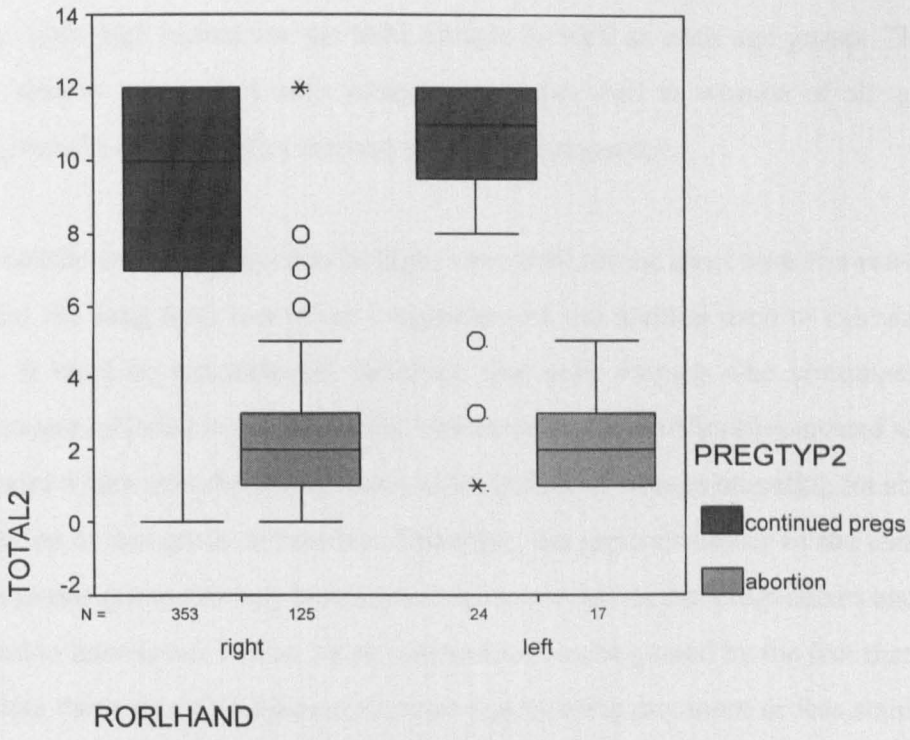


Figure 12.13: Scores by left or right handedness, according to outcome of pregnancy



Discussion

Reliability

As a result of basing the item development on the conceptual model of the qualitative stage, I began item analysis with only 12 items. Twelve is an unusually small number of items to begin item analysis within a psychometric study. Therefore, there was potentially a danger of not being able to construct a reliable scale. However, my fears were unfounded as initial examination of the 12 items showed them to be internally consistent, with an alpha well over 0.90. The most likely reason for the initially high alpha was the conceptual underpinning of the items.

The aim was to produce a short, but reliable and valid, measure, suitable for use in large

;cale surveys. Through the item selection strategy, I reduced the number of items to six, whilst at the same time maintaining high internal consistency (i.e. alpha over 0.90). Analysis of data from the second round of field testing also showed no drop in internal consistency, with high alphas for the total sample as well as each age group. That the measure is reliable when used with young women (as well as women of all ages) is important given the current policy interest in teenage pregnancy.

Test-retest coefficients also proved to be high - over 0.90 for the short term test-retest, and over 0.85 for the long term test retest - regardless of the method used to calculate the coefficient. It must be remembered, however, that only women who continued their pregnancies were included in the test-retest. Unfortunately, the difficulties around sending a questionnaire which asks about pregnancy to the homes of women attending for abortion made follow up of this group unfeasible. Therefore, the generalisability of the test-retest coefficients to this group can only be assumed. However, given that pregnancies ending in abortion tend to have lower scores, some reassurance can be gained by the fact that in the test-retest data there was no evidence of lower scores being any more or less stable than higher scores.

The long term test-retest scores, as expected, demonstrated more change than the short term test-retest scores (although both had high reliability coefficients). Interestingly, however, there was no evidence of the scores increasing over time. This finding, therefore, does not support the research of Everett (1991), Bankole and Westoff (1998) and Joyce et al (2002) which had shown women being more likely to report their pregnancies "planned" or "intended" after the birth than before. The reason for the difference may be that the questions of the measure allow a greater range of answers and therefore do not force women into extreme positions (e.g. planned/intended versus unplanned/unintended) which may be inaccurate and therefore lack validity. Also, by not relying on a single term (e.g. "planned"), the measure avoids the bias that may result from women's particular connotations of that term, particularly any associations of stigma.

In summary, the reliability coefficients for all measures of reliability were high, and in all

cases above Nunnally's (1970) recommended minimum level of 0.80, and well above Kline's (1986) minimum level of 0.70.

Validity

The conceptual model from the qualitative stage provided the starting point for item development, and was the yardstick against which I could judge content validity. I designed the item selection strategy to maintain content validity (as well as achieve internal consistency), and the comparison of the final six-item measure with the conceptual model suggests this strategy was successful (i.e. each of the six dimensions of the model is represented by a question).

In order to assess construct validity, I carried out a number of hypothesis tests. The hypothesis about the underlying structure of the questions was confirmed by principal component analysis (i.e. all variables of the measure were measuring one factor) which can be interpreted as evidence that the measure is, indeed, focussing on only one construct. That the measure is focussing on the right construct was confirmed by the results of hypothesis tests to establish whether the measure was behaving in the manner I expected. I found significant associations by age, marital status, educational level, ethnicity, child order, and outcome of pregnancy. However, because all the hypotheses related to single variables without adjustment for other factors, all the tests were unifactorial. A more sophisticated multifactorial analysis would allow the relative contributions of each variable after adjustment to be assessed. In chapter 14, I present such an analysis.

My choice of a variable to measure discriminant validity was somewhat unusual, however I had been very limited in the number of variables I believed to be unrelated to the construct. Reassuringly, left or right handedness proved not to be associated with any particular distribution of scores. However, the fact that the variable is so unusual in the context of discriminant validity, it is hard to interpret, i.e. what does the lack of association tell us? If bias had been present, I would have had little idea of the mechanisms by which bias might have been produced. Therefore, beyond the simple fact that handedness was not

associated and I had no reason to believe it would be, this test adds relatively little to our sum of knowledge about the measure or the construct.

Summary

I began item analysis with 12 items based on the conceptual model of the qualitative stage. Through the strategy for item analysis and selection, it was possible to reduce the number of items to six whilst at the same time maintaining both internal consistency and content validity. Using data from the second field test, I assessed the reliability and validity of the final six-item measure. In terms of internal consistency and test-retest reliability, the measure performed extremely well, with most coefficients over 0.90, and all coefficients over 0.80. In terms of construct validity, all hypotheses regarding the behaviour of the measure and its underlying structure were met. These data suggest that the measure is both valid and reliable.

Chapter 13: Interpreting the scores

A new reliable and valid measure of pregnancy planning potentially has many uses in research and policy. But in order for it to provide useable and useful information, some understanding of the scores is required. As Ware and Keller comment, one of the most frequently asked questions about new and established measures is "what do the numbers mean?" (1996, p.445). In psychometrics generally, the "interpretability" of health measures has been a growing area of interest for some years (Fletcher et al, 1992; Ware and Keller, 1996; Wyrwich et al, 1999; Guyatt, 2000; Liang, 2000; Lydick, 2000; Testa, 2000). Guyatt (2000) argues that there are many potentially useful instruments with strong evidence of construct validity, but that they often remain underused because they have little or no information regarding their interpretability. In this chapter, therefore, I attempt to explain the meaning of the scores of the measure. I also discuss the implications for research and policy, and present data comparing the scores of the measure with a single item question on pregnancy planning.

Methods for interpreting scores

Ware and Keller describe the scores of a measure as abstractions, explaining: "to the extent that something is abstract, it lacks the contextual details that provides meaning in any particular instance" (1996, p.445). In order to provide scores with the contextual detail necessary for interpretation, they identify three methods: criterion-based interpretation, construct-based interpretation, and content-based interpretation. Criterion-based interpretation relies on information about the relationship of scale scores to external variables (1996, p.453). For example, clinical indices of disease severity, work productivity, and utilisation of health services may be used to interpret and understand the scores of a disease or health status measure. (This process is also often described as determining the "clinical significance" of scores). In construct-based interpretation, the scores of a measure can be understood on the basis of how they relate to another reliable and valid scale of the

same construct (1996, p.450). Obviously, a suitable comparison measure (such as a "gold standard") must be available for this method. Finally, Ware and Keller describe the most common method of interpretation, content-based interpretation, in which the scores of a scale are related to the content of the measure (1996, p.448).

Ultimately, according to Ware and Keller (1996) and Lydick (2000), the interpretability of a scale increases the more it is used and the more it becomes familiar to researchers and health professionals. Lydick also argues that the production of population norms is a particularly effective way of increasing the interpretability of a measure in the longer term. Population norms allow other studies (which may have a specific focus) to compare and interpret their results in a population context.

For this measure, neither the criterion-based nor the construct-based methods of interpretation suggested by Ware and Keller (1996) were feasible. As explained in chapter 11, no good criterion measures of pregnancy planning/intention are available and no other reliable and valid measure of pregnancy planning exists. Consequently, I opted for the method of content-based interpretation. In the following analysis, I use data from the second field test (primarily item responses) and insights from the qualitative stage to provide the contextual detail necessary for interpretation of the scores.

Interpretation of scores

As shown in previous chapters, higher scores on the measure indicate greater levels of pregnancy planning/intention than lower scores, but the relationship of women's experiences to actual scores is not clear. Table 13.1, which displays the item scores by score totals, provides more contextual detail. (The statements which relate to the item scores are shown in table 11.1 in chapter 11 and the original items can be found appendix 13.) To interpret table 13.1, the number of women with particular total scores is shown on the left, and their scores across the items are shown in the corresponding row. For instance, it can be seen that of the 28 women who had total scores of eight, 10.7% ticked the statement "I

intended to get pregnant" (score 2), 67.9% ticked "my intentions kept changing" (score 1), and 21.4% ticked "I did not intend to get pregnant" (score 0).

In order to understand the total scores, I first examined the individual item scores by the score totals (i.e. the vertical columns) to see how these scores changed. As expected from my knowledge of the qualitative findings, the items for which the scores increased most quickly were question 1 (contraceptive use), followed by question 5 (partner discussion/agreement). However, for none of the items did there seem to be any obvious cut-points; the frequencies of higher item scores increased as the score totals increased.

My next step was to examine in more detail the composition of each of the score totals by looking at the item scores in each row:

Score 12

Women who had scored a total of 12 had answered positively to every question (i.e. no contraception, right time, intended to get pregnant, wanted to have a baby, had partner agreement, and carried out two or more pre-conceptual actions). According to the conceptual model, the pregnancies of these women were the most highly planned/intended.

Score 11

Women who scored a total of 11 had the same pregnancy situations as those who scored 12 except for one dimension. The majority of these women had only carried out one pre-conceptual action, rather than two or more. Again, according to the conceptual model, the pregnancies of these women were highly planned/intended.

Score 10

Of the 66 women who scored a total of ten, 34 of them (51.5%) were identical in their responses to those who scored 12 except for any pre-conceptual actions. Another 22 women

Table 13.1: Item scores by total scores

Total score	No. of women	Question 1 (contraception)		Question 2 (timing)		Question 3 (intentions)		Question 4 (desire for motherhood)		Question 5 (partner agreement)		Question 6 (pre-concept.preps)	
		score	%	score	%	score	%	score	%	score	%	score	%
12	159	2	100	2	100	2	100	2	100	2	100	2	100
		1	-	1	-	1	-	1	-	1	-	1	-
		0	-	0	-	0	-	0	-	0	-	0	-
11	87	2	100	2	92.0	2	96.6	2	97.7	2	100	2	13.8
		1	-	1	8.0	1	3.4	1	2.3	1	-	1	86.2
		0	-	0	-	0	-	0	-	0	-	0	-
10	66	2	83.3	2	83.3	2	92.4	2	86.4	2	97.0	2	15.2
		1	13.6	1	15.2	1	7.6	1	13.6	1	1.5	1	33.3
		0	3.0	0	1.5	0	-	0	-	0	1.5	0	51.5
9	18	2	61.1	2	66.7	2	66.7	2	77.8	2	83.3	2	11.1
		1	38.9	1	33.3	1	27.8	1	22.2	1	11.1	1	33.3
		0	-	0	-	0	5.6	0	-	0	5.6	0	55.6
8	28	2	75.0	2	35.7	2	10.7	2	46.4	2	71.4	2	28.6
		1	21.4	1	64.3	1	67.9	1	53.6	1	28.6	1	28.6
		0	3.6	0	-	0	21.4	0	-	0	-	0	42.9
7	23	2	52.2	2	39.1	2	13.0	2	60.9	2	34.8	2	17.4
		1	43.5	1	52.2	1	56.5	1	39.1	1	56.5	1	17.4
		0	4.3	0	8.7	0	30.4	0	-	0	8.7	0	65.2
6	20	2	60.0	2	25.0	2	-	2	30.0	2	35.0	2	5.0
		1	35.0	1	65.0	1	50.0	1	70.0	1	60.0	1	10.0
		0	5.0	0	10.0	0	50.0	0	-	0	5.0	0	85.0

Table 13.1 *continued*: Item scores by total scores

Total score	No. of women	Question 1 (contraception)		Question 2 (timing)		Question 3 (intentions)		Question 4 (desire for motherhood)		Question 5 (partner agreement)		Question 6 (pre-concept.preps)	
		score	%	score	%	score	%	score	%	score	%	score	%
5	31	2	58.1	2	16.1	2	-	2	19.4	2	6.5	2	6.5
		1	38.7	1	74.2	1	22.6	1	74.2	1	64.5	1	12.9
		0	3.2	0	9.7	0	77.4	0	6.5	0	29.0	0	80.6
4	25	2	52.0	2	8.0	2	-	2	12.0	2	-	2	8.0
		1	32.0	1	64.0	1	8.0	1	60.0	1	72.0	1	4.0
		0	16.0	0	28.0	0	92.0	0	28.0	0	28.0	0	88.0
3	52	2	26.9	2	3.8	2	-	2	1.9	2	-	2	5.8
		1	59.6	1	38.5	1	-	1	38.5	1	82.7	1	3.8
		0	13.5	0	57.7	0	100	0	59.6	0	17.3	0	90.4
2	57	2	31.6	2	-	2	-	2	-	2	-	2	-
		1	61.4	1	10.5	1	1.8	1	15.8	1	47.4	1	-
		0	7.0	0	89.5	0	98.2	0	84.2	0	52.6	0	100
1	53	2	-	2	-	2	-	2	-	2	-	2	-
		1	67.9	1	1.9	1	-	1	3.8	1	24.5	1	1.9
		0	32.1	0	98.1	0	100	0	96.2	0	75.5	0	98.1
0	14	2	-	2	-	2	-	2	-	2	-	2	-
		1	-	1	-	1	-	1	-	1	-	1	-
		0	100	0	100	0	100	0	100	0	100	0	100

(33.3%) had carried out only one pre-conceptual action and opted for a middle statement (score 1) on one of the other questions (e.g. "I had mixed feelings about having a baby", "ok, but not quite right time"). Overall, according to the conceptual model, the pregnancies of these women were also highly planned/intended.

Score 9

The item scores of women who scored a total of nine suggest the first indication of ambivalence, although the item scores still indicate reasonably high levels of planning/intention according to the conceptual model. To explore further, I examined the item scores of the individual women (table 13.2 shows three examples) against the four criteria for applying the term planned that were identified in the qualitative stage (see figure 5.4 in chapter 5). I found that, according to these criteria, only one woman would have applied the term "planned" to her pregnancy, in contrast to the majority of women with scores of of ten and above (see table 13.3). This finding confirmed my initial interpretation of score nine - that these were pregnancies which were preceded by many positive motivations and actions, but just not quite with the degree of active planning of 10 and above.

Table 13.2: Three women who had total scores of 9

Id.no.	2010		3490		3531	
Details	Postnatal Age 26 Lives with partner 1 child		Postnatal Age 31 Lives with husband 2 children		Continuing pregnancy Age 26 Lives with husband 0 children	
qu1	2	no contraception	2	no contraception	1	partial contra.use
qu2	2	right time	1	ok... time	2	right time
qu3	2	intended	2	intended	1	mixed intentions
qu4	2	wanted baby	2	wanted baby	2	wanted baby
qu5	1	partner discuss'd	2	partner agreed	2	partner agreed
qu6	0	no actions	0	no actions	1	1 action
qu1 - contraceptive use; qu2 - timing; qu3 - intentions; qu4 - desire for motherhood; qu5 - partner agreement/discussions; qu6 - pre-conceptual actions						

Table 13.3: Scores by qualitative criteria for applying the term "planned"

Scores	"Planned" *	"Unplanned"
12	159	-
11	77	10
10	42	24
9	1	17
8	-	28
7	-	23
6	-	20
5	-	31
4	-	25
3	-	52
2	-	57
1	-	53
0	-	14
Total no. of women:	278	355
* if qu1=2 & qu2 = 2 & qu3 = 2 & qu5 = 2 (equivalent to qualitative criteria shown in figure 5.4)		

Score 8

The item scores of the 28 women who scored a total of eight (see also table 13.4) still indicated reasonable levels of pregnancy planning/intention, but more clearly represented an ambivalent state than score nine.

Table 13.4: Three women who had total scores of 8

Id.no:	2047	3545	3120
Details	Postnatal Age 33 Lives with husband 1 child	Continuing pregnancy Age 17 Lives with parents 0 children	Continuing pregnancy Age 23 Lives alone 0 children
qu1	2 no contraception	2 no contraception	1 partial contra.use
qu2	1 ok... time	1 ok... time	1 ok .... time
qu3	0 not intended	1 mixed intentions	1 mixed intentions
qu4	1 mixed feelings	1 mixed feelings	2 wanted baby
qu5	2 partner agreed	1 partner discus'd	2 partner agreed
qu6	2 2 actions	2 2 actions	1 1 action
qu1 - contraceptive use; qu2 - timing; qu3 - intentions; qu4 - desire for motherhood; qu5 - partner agreement/discussions; qu6 - pre-conceptual actions			

Scores 6 and 7

The item scores comprising the score totals of six and seven seemed to clearly indicate ambivalent states, with neither positive nor negative actions or motivations predominating.

Scores 4 and 5

Although the item scores comprising score totals four and five indicated some ambivalence, their interpretation was less clear. Once again, to explore further, I examined the item scores of the individual women (examples in tables 13.5 and 13.6). It seems that in these individual accounts some predisposing factors were present (e.g. questions 2, 4, and 5), although actions were ambiguous (e.g. questions 1 and 6). Overall, I concluded that some positive motivations towards pregnancy were present in the women who had score totals of 4 and 5.

Table 13.5: Three women who had total scores of 5

Id.no:	3157		3132		3500	
Details	Abortion Age 29 Lives with partner 0 children		Continuing pregnancy Age 18 Lives with partner 0 children		Postnatal Age 32 Lives alone 6 children	
qu1	1	partial contra.use	1	partial contra.use	2	no contraception
qu2	1	ok... time	1	ok... time	0	wrong time
qu3	0	not intended	1	mixed intentions	0	not intended
qu4	2	wanted baby	1	mixed feelings	1	mixed feelings
qu5	1	partner discus'd	1	partner discus'd	2	partner agreed
qu6	0	0 actions	0	0 actions	0	0 actions

qu1 - contraceptive use; qu2 - timing; qu3 - intentions; qu4 - desire for motherhood; qu5 - partner agreement/discussions; qu6 - pre-conceptual actions

Table 13.6: Three women who had total scores of 4

Id.no:	2045		3148		3337	
Details	Postnatal Age 21 Lives with partner 1 child		Abortion Age 35 Lives alone 0 children		Continuing pregnancy Age 15 Living situation: "other" 0 children	
qu1	0	using contracept	2	no contraception	1	contracept.failure
qu2	1	ok... time	1	ok... time	2	right time
qu3	0	not intended	0	not intended	0	not intended
qu4	2	wanted baby	1	mixed feelings	1	mixed feelings
qu5	1	partner discus'd	0	not discussed	0	not discussed
qu6	0	0 actions	0	0 actions	0	0 actions
qu1 - contraceptive use; qu2 - timing; qu3 - intentions; qu4 - desire for motherhood; qu5 - partner agreement/discussions; qu6 - pre-conceptual actions						

Score 3

The item scores comprising score total three seemed to indicate few positive motivations towards pregnancy. To check, I examined individual accounts (examples in table 13.7) which confirmed my initial impression of the summary item scores.

Table 13.7: Three women who had total scores of 3

Id.no:	3052		3168		3249	
Details	Continuing pregnancy Age 19 Lives with parents 0 children		Abortion Age 20 Lives alone 0 children		Abortion Age 30 Lives with husband 1 child	
qu1	1	partial contra.use	2	no contraception	1	partial contra.use
qu2	1	ok... time	0	wrong time	0	wrong time
qu3	0	not intended	0	not intended	0	not intended
qu4	0	didn't want baby	0	didn't want baby	1	mixed feelings
qu5	1	partner discus'd	1	partner discus'd	1	partner discus'd
qu6	0	0 actions	0	0 actions	0	0 actions
qu1 - contraceptive use; qu2 - timing; qu3 - intentions; qu4 - desire for motherhood; qu5 - partner agreement/discussions; qu6 - pre-conceptual actions						

Scores 1 and 2

The items scores comprising score totals one and two suggest virtually no positive motivations towards pregnancy. The highest item scores are found in question one (contraceptive use) which, as is known from the qualitative findings, can occur for a variety of reasons other than a desire for pregnancy.

Score 0

The item scores comprising score the total of zero show these women to be negative on all aspects the conceptual model, i.e. the complete absence of any positive motivation or action towards pregnancy.

Implications for research and policy

The increasing scores of the measure represent increasing degrees of pregnancy planning/intention and there are no obvious cut points in the scale. Therefore the optimum level of information about pregnancy planning/intention is gained by using all 13 scores of the measure. For most studies which need a measure of pregnancy planning, using all 13 levels of outcome is both appropriate and feasible. For instance, assessment of median scores and interquartile ranges is a simple and effective way of using the full score information to compare sub-groups of the population or assess changes over time, and ordinal regression techniques allow other factors to be controlled for. However, in terms of producing population estimates of "unplanned" or "planned" pregnancy, some division of scores into policy-relevant groupings is required (i.e. to enable the proportion of unplanned or planned pregnancies to be estimated). On the basis of my interpretation of the scores (above), I recommend a minimum of three groups: scores 10-12, scores 4-9, and 0-3. Scores ten and above are the most actively planned/intended pregnancies and could be considered "planned" for the purposes of policy. Scores four to nine represent pregnancies which are preceded by equivocal motivations/actions and could be termed "ambivalent", and scores zero to three represent conceptions which are preceded by few, if any, positive

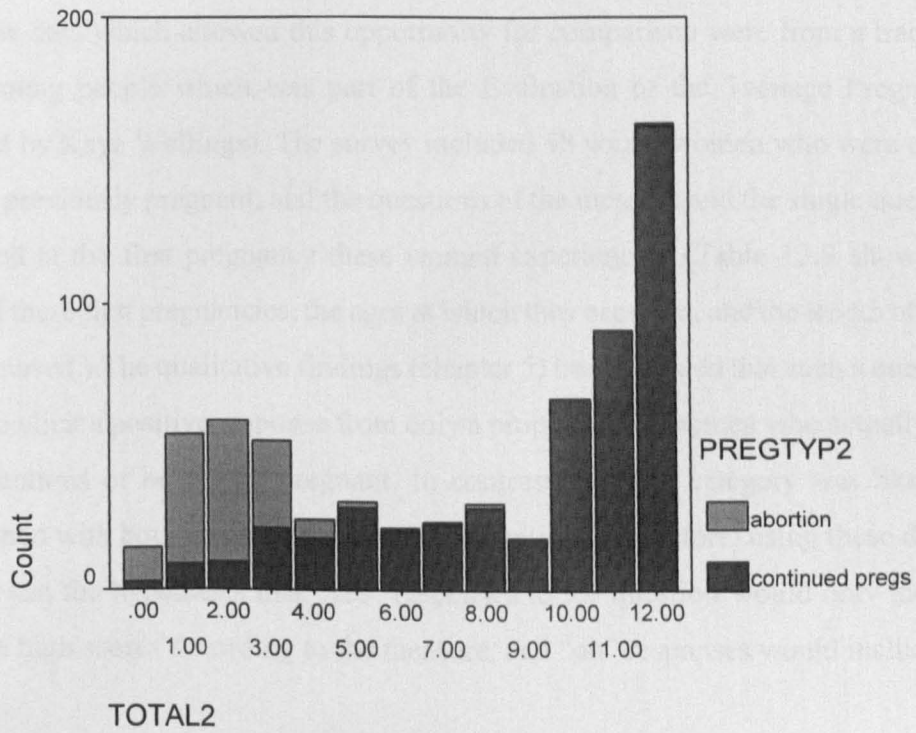
motivations towards pregnancy and could, for policy purposes, be referred to as "unplanned". From this trichotomous grouping of scores, simple estimates, conveying the key "headline" information about women's pregnancies, could be calculated.

The numbers of women in each of the three policy-relevant groupings in this sample are shown in table 13.8 (and pictorially in figure 13.1). As expected, the majority of continued pregnancies were "planned" (i.e. scores 10-12) and the majority of pregnancies ending in abortion were "unplanned" (i.e. scores 0-3). According to this classification, however, only 9% of continued pregnancies were "unplanned"; a stark contrast to the last British national estimate of 31% (Fleissig, 1991).

Table 13.8: Proportions of women in the three score groupings relevant to policy

Scores	All conceptions		Continued/ing pregnancies only		Abortions only	
	%	(n)	%	(n)	%	(n)
10-12	49.3	(321)	63.7	(320)	0.7	(1)
4-8	23.0	(150)	27.5	(138)	8.1	(12)
0-3	27.6	(180)	8.8	(44)	91.3	(136)

Figure 13.1: Bar chart of scores according to outcome of pregnancy



Considering the information gained from the 90 women who took part in the short term test-retest and the 87 women who took part in the long term test-retest, only four women (4.4%) changed "policy category" between time one and time two in the short term test-retest, and 13 women (14.9%) changed "policy category" between time one and time two of the long term test-retest.

A study to produce population estimates of unplanned pregnancy in Britain would provide rich policy-relevant information. Such a study would also be able to establish the baseline estimates of unplanned pregnancy necessary to assess change over time (particularly following health and social interventions such as the Teenage Pregnancy Strategy and the Sexual Health Strategy). Also, as Lydick (2000) argues, a study to produce population estimates would, in the longer term, increase the usefulness and usability of the measure by providing a population-based comparison for other studies.

Comparing the scores of the measure with a single question on pregnancy planning

As explained in chapter 2, many studies have used single item questions to assess pregnancy planning. By fortuitous accident, I had the opportunity to compare one such single item question ("Was the pregnancy planned?") with the scores produced by the measure. The data which allowed this opportunity for comparison were from a tracking survey of young people which was part of the Evaluation of the Teenage Pregnancy Strategy (led by Kaye Wellings). The survey included 48 young women who were either currently or previously pregnant, and the questions of the measure and the single question were directed at the first pregnancy these women experienced. (Table 13.9 shows the outcomes of these first pregnancies, the ages at which they occurred, and the length of time ago they occurred.) The qualitative findings (chapter 5) had indicated that such a question was likely to elicit a positive response from only a proportion of women who actually had positive intentions of becoming pregnant. In contrast the "no" category was likely to include women with both positive and negative intentions. Therefore, using these data, I was able to test the hypothesis that "yes" responses to the question would only include women with high scores according to the measure, and "no" responses would include

Table 13.9: Teenage Pregnancy Strategy Evaluation information

Variable	%	(no.)
Outcome of first pregnancy:		
continued	70.8	(34)
miscarriage	10.4	(5)
abortion	18.8	(9)
Age at first pregnancy:		
12	2.1	(1)
13	0	(0)
14	6.3	(3)
15	16.7	(8)
16	33.3	(16)
17	18.8	(9)
18	8.3	(4)
19	12.5	(6)
20	2.1	(1)
Number of years since first pregnancy:		
0	2.1	(1)
1	22.9	(11)
2	18.8	(9)
3	20.8	(10)
4	18.8	(9)
5	10.4	(5)
6	4.2	(2)
7	2.1	(1)

women with both high and low scores.

Table 13.10 shows the distribution of women's scores according to their answers to the planned pregnancy question. As hypothesised, the women who answered yes to the planned pregnancy question had high scores (range 8 to 12), and those who answered "no" had a spread of scores, including high scores (range 1 to 11). These results demonstrate the limited nature of the pregnancy planning question - in particular, the failure of the two categories (i.e. yes/no) to distinguish between different pregnancy circumstances, and the wide range of pregnancy circumstances encompassed by the "no" category. The poor validity and reliability of this question has implications for the many studies which have used this question (or some version of it) in their analyses.

Table 13.10: Teenage Pregnancy Strategy Evaluation data: scores by planned pregnancy question

Scores	Was your pregnancy planned?	
	Yes	No
12	1	-
11	-	1
10	3	1
9	-	-
8	1	3
7	-	1
6	-	1
5	-	5
4	-	9
3	-	9
2	-	9
1	-	4
0	-	-
Total no. of women:	5	43

Summary

The increasing scores of the measure (from zero to 12) represent increasing degrees of pregnancy planning/intention and there are no obvious cut points in the scale; each score provides additional information. Therefore, the most sophisticated level of information about pregnancy planning/intention would be gained by using all 13 scores of the measure. For most studies wishing to use a measure of pregnancy planning, using all 13 levels of the outcome would be appropriate and feasible. However, in terms of producing population estimates some division of scores into policy-relevant groupings is required. For this I recommend three groups: 10-12, 4-9; and 0-3. These groups could be termed, respectively: planned, ambivalent, and unplanned.

Comparison of the scores of the measure with a single question on pregnancy planning using data from the Teenage Pregnancy Strategy Evaluation revealed a pattern of association predicted by the qualitative findings (i.e. high scores for the women who answered "yes" to the single question, and a range of scores for those who answered "no"). The poor validity of the single question has implications for the many studies which have employed this question (or a similar version of it) in their analyses.

Chapter 14: Analysis of factors associated with pregnancy planning

One of the uses of a new reliable and valid measure of pregnancy planning will be to investigate factors associated with pregnancy planning/intention. In this study I collected information about a limited number of factors (e.g. age, marital status, etc) for the purposes of construct validity testing; the construct validity hypothesis tests confirmed that the measure behaved in the manner I expected (see chapter 12). In this chapter, I investigate the relationship of these factors to pregnancy planning in more detail, using multifactorial methods. My rationale is that by exploiting the data to their full extent, it may be possible, even in a small way, to further our knowledge of the construct (i.e. by allowing new hypotheses to be made and tested in future research). The results presented in this chapter, therefore, must be considered informative of future research and not a definitive answer to the question of which factors are associated with pregnancy planning.

Methods

The sample

Given that I wished to carry out what was, essentially, an exploratory analysis, I decided to maximise my data by combining the data from the first and second field tests in order to have as many women as possible in subgroups of interest (e.g. teenagers, ethnic minorities, etc). Combining data from separate field tests in this manner is not normal practice in psychometrics, the objection being that the women have received different questionnaires which may have led them to answer in different ways. However, the similarity of the results from the first and second field tests in terms of the scores distributions (chapters 11 and 12), the item-total correlations (table 14.1) and Cronbach alpha coefficients (table 14.1) led me to believe that combining the datasets was feasible for this analysis.

Table 14.1: Item-total correlations and Cronbach alphas scores of 6-item measure in first and second field tests

Question †	First field test		Second field test	
	*Item-totals**	*(rank)*	*Item-totals**	*(rank):*
1	0.5949	(6)	0.6028	(6)
2	0.8017	(4)	0.8394	(3)
3	0.8733	(1)	0.8913	(1)
4	0.8371	(2)	0.8488	(2)
5	0.8263	(3)	0.8288	(4)
6	0.6253	(5)	0.6594	(5)
	Cronbach's alpha: 0.9129		*Cronbach's alpha:* 0.9203	
*correlation of each item with the scale total omitting that item † qu1 - contraceptive use; qu2 - timing; qu3 - intentions; qu4 - desire for motherhood; qu5 - partner agreement/discussions; qu6 - pre-conceptual actions				

Table 14.2: Comparison of descriptive statistics for score totals before and after imputation of missing data

	Total 1*	Total 2**
Mean	7.7505	7.7276
Median	10	10
Mode	12	12
Percentiles:		
25	3	3
75	12	12
* before imputation of missing data, 1002 women included ** after imputation of missing data, 1039 women included		

Combining the field tests produced a dataset of 1041 women, of whom 1002 (96.3%) had full data for all six items and, after imputation of missing data, 1039 (99.8%) had total scores. (The method used for imputing missing data is described in chapter 11). As expected, the descriptive statistics for the scores before and after imputation of missing data were virtually identical (table 14.2). As before, transforming the score data (e.g. reflect and log, reflect and square root) did not make the distribution normal. Therefore, non-parametric methods of statistical analysis were again required.

The characteristics of the women in the "combined" dataset are shown in table 14.3. As can be seen, 10% were teenagers, 24% were born outside Britain, and 31% did not classify themselves as 'white British'.

Unifactorial analyses

In the construct validity hypothesis testing (chapter 12), I had found six variables to be significantly associated with pregnancy planning: age, marital status, ethnicity, child order (actual and hypothetical), educational level, and pregnancy outcome. One variable, country of birth, was not significant. I decided, as a first step, to repeat the unifactorial analyses with the combined dataset, i.e. assessing the distributions of scores using box and whisker plots (using the same variable categories as before and more detailed categories where possible) and carrying out appropriate significance tests (e.g. Mann-Whitney U, Kruskal-Wallis, Jonckheere-Terpstra). My expectation was that the findings would be similar to those reported in chapter 12 given that the data on which the previous tests were based comprised two-thirds of the current dataset.

Multifactorial analysis

Ordinal regression was the most appropriate method of multifactorial analysis for the data as it requires an ordinal outcome variable and two or more predictor variables (which can be categorical and/or continuous). There are two forms of ordinal regression: the proportional (or cumulative) odds form and the continuation ratio model. The proportional

Table 14.3: Characteristics of sample (combined dataset)

Variable	Combined datasets % (no.)
Centre:	n=1039
St George's	27.9 (290)
Raymede	10.5 (109)
W.Herts	13.0 (135)
Southampton	19.1 (198)
Salisbury	2.9 (30)
Edinburgh	26.3 (273)
North Middlesex	0.4 (4)
Pregnancy situation:	n=1039
continuing pregnancy	53.4 (555)
abortion	21.3 (221)
postnatal	25.3 (263)
Age:	n=1031
under 20	10.1 (104)
20-24	14.8 (153)
25-29	22.2 (229)
30-34	30.0 (309)
35-39	18.8 (194)
40+	4.1 (42)
range:	14-47
Who women live with:	n=1036
husband	52.3 (542)
partner	20.3 (210)
husband and parents	2.2 (23)
partner and parents	2.1 (22)
parents	7.9 (82)
alone	9.7 (101)
other relatives or friends	4.2 (44)
other	1.2 (12)
Broad educational level:	n=1028
school	22.1 (227)
post-16	34.6 (356)
higher/further	42.7 (445)

Table 14.3 *continued*: Characteristics of sample (combined dataset)

Variable	Combined datasets % (no.)
Woman's place of birth:	n=1034
Britain	76.2 (788)
Elsewhere	23.8 (246)
Ethnicity:	n=1037
white	
white British	69.2 (719)
white Irish	2.5 (26)
white other	9.2 (95)
Mixed	
mixed - white and Black Caribbean	0.6 (6)
mixed - white and Black African	0.3 (3)
mixed - white and Asian	0.6 (6)
mixed - other	0.5 (5)
Asian	
Asian - Indian	1.6 (17)
Asian - Pakistani	1.6 (17)
Asian - Bangladeshi	1.0 (10)
Asian - other	2.0 (21)
Black/Black British:	
Black Caribbean	3.9 (40)
Black African	4.5 (47)
Black other	0.3 (3)
Chinese or other	
Chinese	1.1 (10)
Other	1.2 (12)

odds form was first developed by McCullagh (1980) and is the form available in SPSS. The model is based on the idea that there is a latent continuous outcome variable, and that the manifest ordinal outcome variable simply divides the underlying continuum into ordered groups (Norusis, 1999). A generalised linear model is then used to predict cumulative probabilities for the categories. A separate equation for each category of the ordinal dependent variable is produced, and each equation gives a predicted probability of being in the corresponding category or any lower category (Norusis, 1999). A link function is then used to convert the cumulative probabilities into probabilities for each category. To date, ordinal regression has not been widely used in health research (Armstrong and Sloan, 1989; Scott et al, 1997). Partly this has been due to the fact that statistics programmes have not included a command for ordinal regression. However, the latest version of SPSS (10.0), released in 1999, has included ordinal regression for the first time.

Armstrong and Sloan (1989) and Scott et al (1997) explain how the ordinal regression model can be compared to logistic regression. According to Scott et al (1997) the odds ratios of an ordinal regression model can be broadly understood as a summary of all the possible binary logistic odds ratios for that category:

> "... the summary proportional odds ratio is independent of the degree of severity cut-point used to classify the outcome variable and is thus valid over all cut-points simultaneously. In other words, it can be viewed as an odds ratio that is independent of the dichotomy chosen to classify the outcome" (Scott et al, 1997, p.47).

Armstrong and Sloan (1989) also carried out some empirical work comparing the efficiency of ordinal regression models with logistic regression models. They found that if the dichotomy for simple logistic regression came close to its optimal point (i.e. creating equal numbers of positive and negative responders) then the power gain using the cumulative odds model was modest. They investigated the efficiency of the cumulative odds models as a function of the number of levels used, and found that simple logistic regression (dichotomising at the median outcome level) was asymptotically 75% efficient, and the relative efficiency of ordinal regression using from three to nine groups was 89, 94, 96, 97, 98, 98, and 99%, respectively (1989, p.199).

I constructed the ordinal regression model by using women's scores (a 13-level variable) as the outcome variable, and entering all the variables that were significant in the unifactorial analysis, except pregnancy outcome. The reason for excluding pregnancy outcome was that I was interested in events surrounding conception and not events which occurred as a result of the pregnancy (i.e. a birth or abortion). For the same reason, I chose to use the "hypothetical" form of the child order variable, i.e. the number child (i.e. first child, second child, etc) the pregnancy would lead to if the pregnancy were continued, regardless of whether the pregnancy was eventually continued or not. Variables were entered simultaneously into the model.

I evaluated the model by examining the model fitting information (-2 log likelihood for the intercept only and the model) and the Nagelkerke pseudo R^2. (The Nagelkerke pseudo-R^2 can range from zero to one, and can be interpreted as a percentage of variance accounted for by the model (Norusis, 1999).) I present the results as odds ratios, 95% confidence intervals, Wald statistics, and p-values for each category.

Results

Unifactorial analyses

As table 14.4 shows, there were significant variations in scores by each of the six variables tested: age, marital status, educational level, country of birth, ethnicity, and child order. The main variations were as follows:

Age: Figure 14.1 shows the distribution of scores according to age. The scores of women under the age of 25 are positively skewed and the scores of women over the age of 25 are negatively skewed, although notably in each age band the full range of scores is represented.

Marital status: Figure 14.2 shows distribution of scores according to whether women lived

Table 14.4: Significance tests for unifactorial analyses

Variable	Mean rank	Significance test and p value
Age group:		
<20	253.13	Kruskal-Wallis, p<0.0001
20-24	369.21	Jonckheere-Terpstra, p<0.0001
25-29	490.45	
30-34	625.99	
35-39	621.41	
40+	544.88	
Marital status/live with:		
husband	669.89	Kruskal-Wallis, p<0.0001
partner	459.87	
not husband or partner	217.53	
Broad educational level:		
school	463.82	Kruskal-Wallis, p<0.0001
post 16	475.66	Jonckheere-Terpstra, p<0.0001
higher/further	569.16	
Country of birth:		
yes	528.63	Mann-Whitney U, p=0.03
no	481.85	
Ethnicity:		
White	535.28	Kruskal-Wallis, p<0.0001
Asian or Asian British	543.95	
Black or Black British	378.20	
Mixed/other	456.57	
Child order:		
was/will/would be first child	503.00	
was/will/would be second child	588.65	Kruskal-Wallis, p<0.0001
was/will/would be third child	452.17	Jonckheere-Terpstra, p<0.946

Table 14.1: Scores by age group

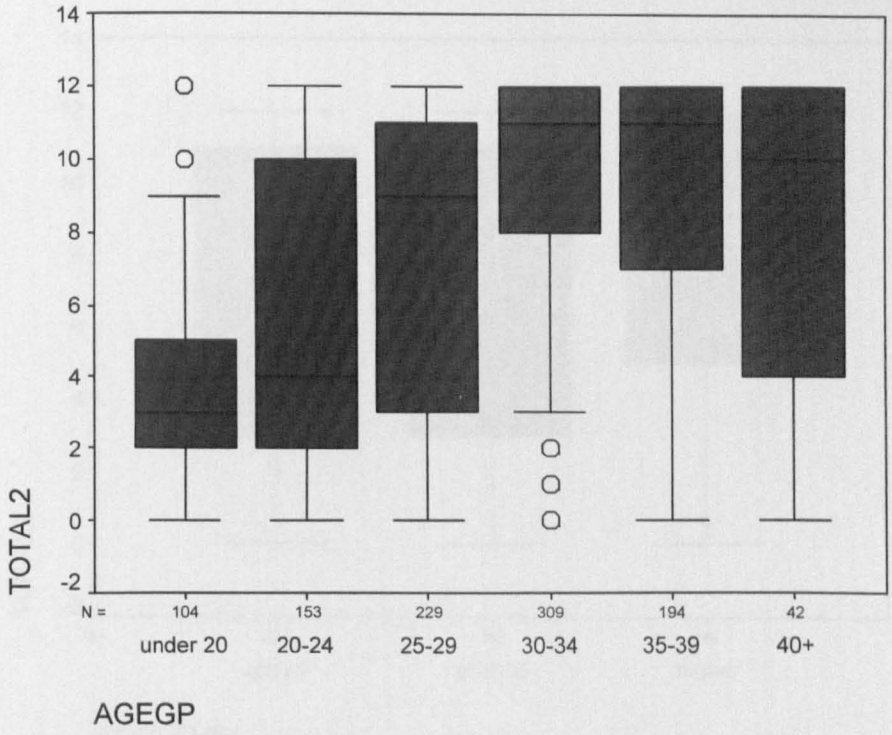


Figure 14.2: Score by marital status

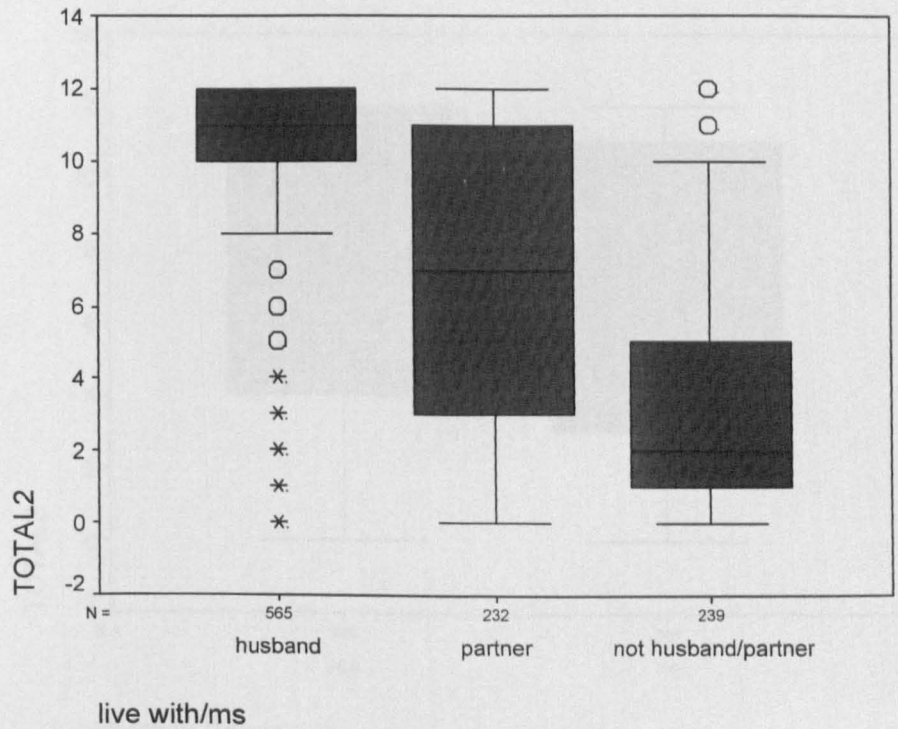


Figure 14.3: Scores by broad educational level

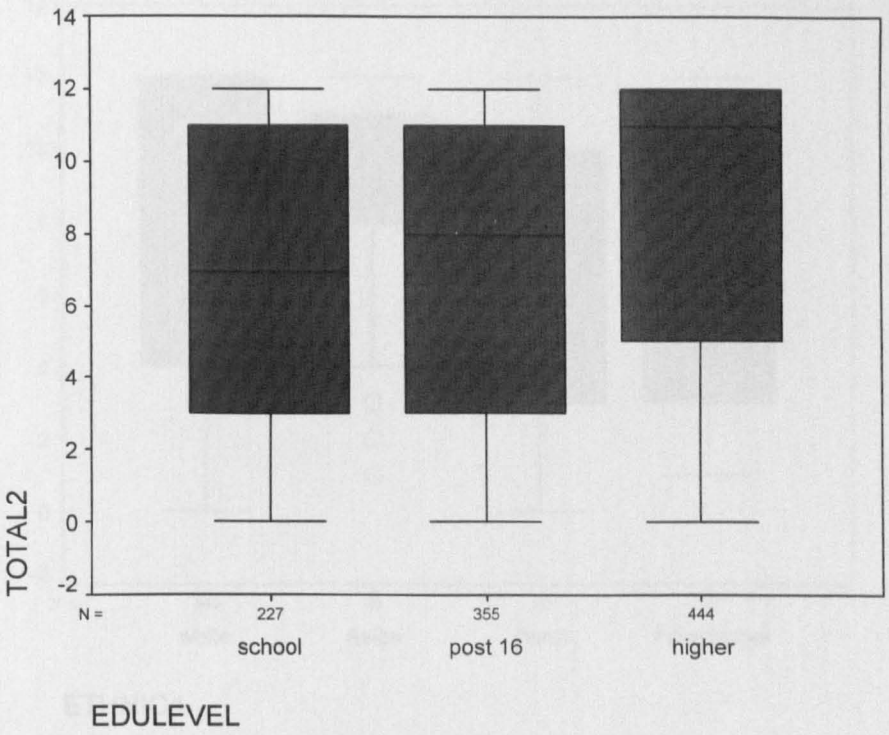


Figure 4.4: Scores by country of birth (Britain or outside Britain)

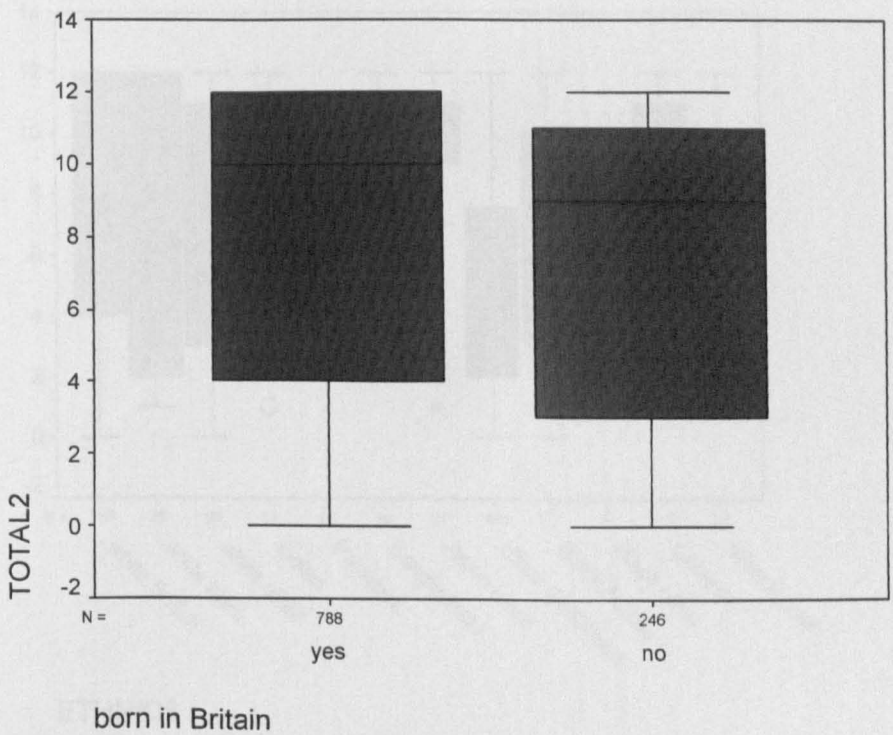


Figure 14.5: Scores by ethnic group

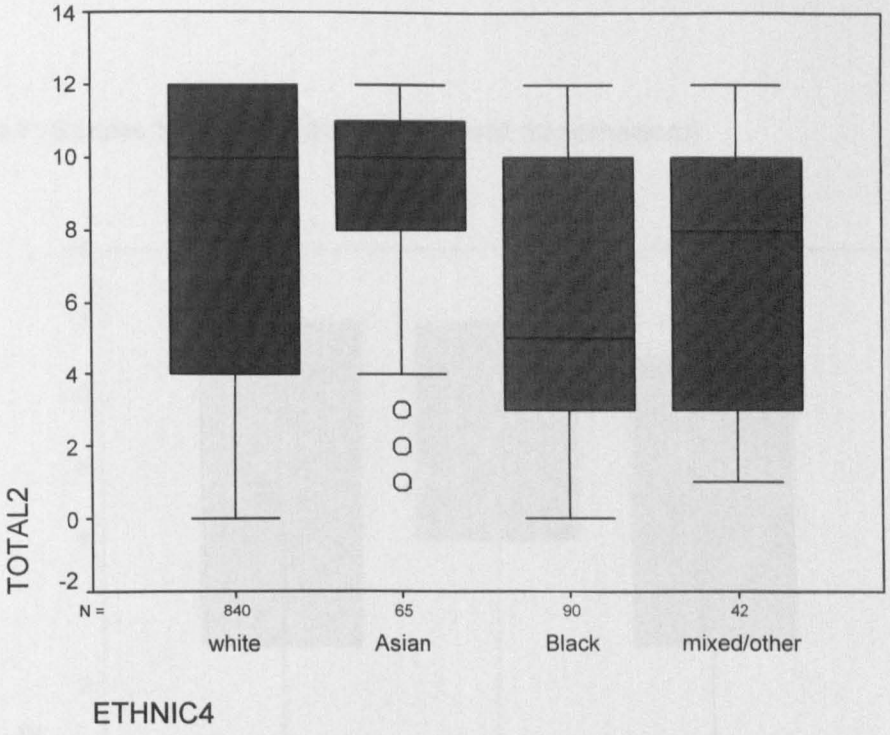


Figure 14.6: Scores by ethnic group (further detail)

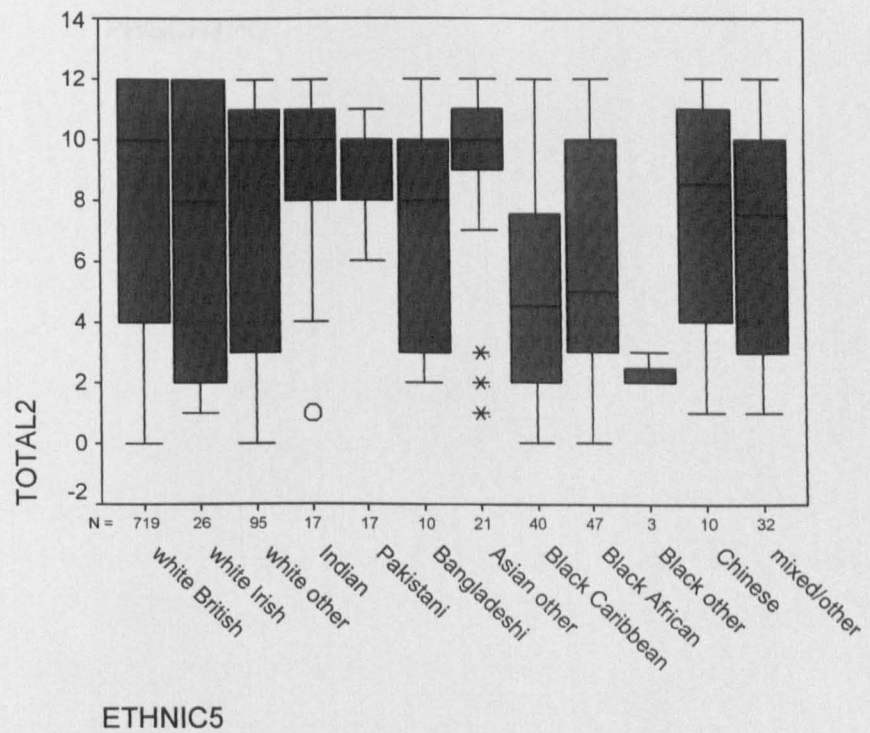
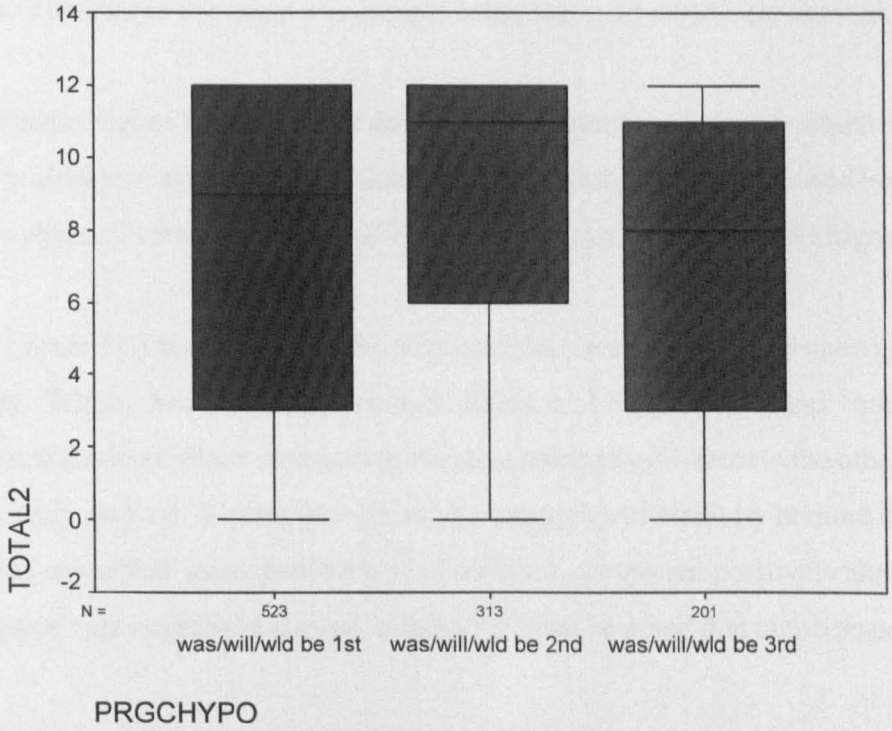


Figure 14.7: Scores by child order (actual and hypothetical)



with their husband, partner, or other. There is a marked stepwise decline in scores from "husband" to "other".

Educational status: Figure 14.3 shows the distribution of scores according to broad educational level, a composite variable of age of leaving full time education and further study (see appendix 21). The distribution of scores in the "higher/further education" group is markedly different to the other two groups, being the most negatively skewed.

Country of birth: Figure 14.4 shows the distribution of scores according to whether women were born in Britain or elsewhere. The distributions are both negatively skewed but slightly different in shape. Overall, the scores of British-born women were slightly higher.

Ethnicity: Figure 14.5 shows the distributions of scores according to four main groupings of ethnicity: White, Asian or Asian British, Black or Black British, and "other". The distribution of scores of Black women was the most markedly different to the other groups, being positively skewed. (Figure 14.6 shows the categories of ethnicity in more detail and it is possible to see that score distributions of all black groups are positively skewed, and all Asian groups are negatively skewed, although it must be noted that numbers are small.)

Child order: Figure 14.7 shows the distributions of scores by (actual and hypothetical) child order. Pregnancies (potentially) leading to the second child had the highest scores.

Multifactorial analysis

In the ordinal regression model, four variables reached significance: marital status, age, child order, and country of birth (table 14.5). The Nagelkerke R^2 value for the model was 0.442. The variable with the largest effect in the model (as assessed by the Wald statistics and odds ratios) was marital status. Assuming that we can interpret an odds ratio as a relative risk, women who were living with their husbands were at approximately 26 times as likely, and women living with their partner were approximately five times as likely, as those not living with a partner to have a pregnancy with higher scores (i.e. a "planned"

Table 14.5: Ordinal regression of pregnancy planning/intention scores

Factor	Wald	Adjusted odds ratio (95% confidence interval)	p value
Age:			
<20	17.02	0.33 (0.19 to 0.56)	<0.0001
20-24	12.62	0.46 (0.30 to 0.71)	<0.0001
25-29	7.93	0.60 (0.42 to 0.86)	0.005
30-34	0.02	1.02 (0.74 to 1.40)	0.890
35+		1.0	
Marital status/live with:			
husband	281.2	26.36 (17.99 to 38.67)	<0.0001
partner	85.82	5.44 (3.80 to 7.79)	<0.0001
other		1.0	
Broad educational level:			
school	1.33	1.20 (0.88 to 1.65)	0.248
post 16	0.57	1.11 (0.85 to 1.45)	0.451
higher/further		1.0	
Child order:			
first child	55.88	3.62 (2.58 to 5.07)	<0.0001
second child	51.09	3.46 (2.46 to 4.85)	<0.0001
third or more child		1.0	
Country of birth:			
Britain	6.69	1.48 (1.10 to 1.99)	0.01
outside Britain		1.0	
Ethnic group:			
White		1.0	
Asian	1.39	0.74 (0.44 to 1.23)	0.239
Black	1.64	1.32 (0.86 to 2.00)	0.201
other	1.71	0.68 (0.38 to 1.21)	0.191

* Each odds ratio adjusted for all other variables in the model.

pregnancy). Also, women who were under the age of 30, those who were born outside Britain, and those for whom the pregnancy would (potentially) lead to the third or more child were less likely to have planned pregnancies.

Further exploratory analysis of ethnicity

Given that country of birth was significant in the ordinal regression model but that ethnicity was not, I explored the scores distributions of both these variables (figure 14.8). Although the numbers of women in ethnic minority groups are small (and therefore findings must be interpreted accordingly), British-born white and Asian women appeared to have higher scores than their non-British-born counterparts, with a reverse pattern in the other two groups. Also, patterns of marital/partnership status varied significantly according to ethnic group (chi=87, p<0.001) (table 14.6), although the pattern of scores by marital status remained the same (figure 14.9).

Figure 14.8: Scores by ethnicity and country of birth

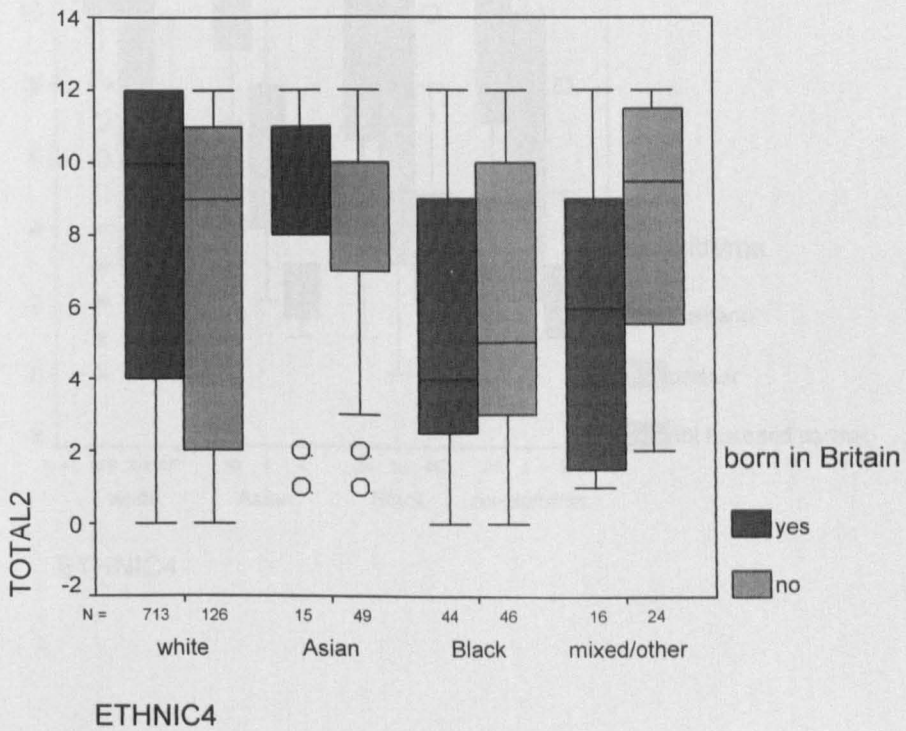
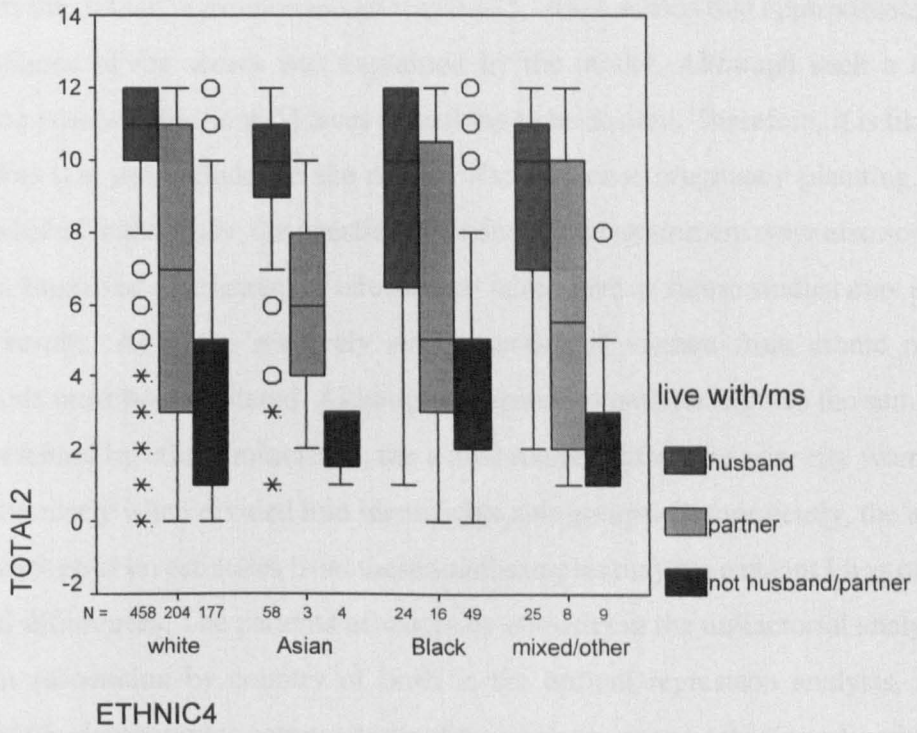


Table 14.6: Ethnic group by marital status

Marital status	Ethnic group			
	white % (no.)	Asian % (no.)	Black % (no.)	Mixed/other % (no.)
living with husband	55% (458)	89% (58)	27% (24)	61% (26)
living with partner	24% (204)	5% (3)	18% (16)	19% (8)
not living with husband/partner	21% (178)	6% (4)	55% (49)	21% (9)

Figure 14.9: Scores by ethnicity and marital status



Discussion

In chapter 12, the results of the construct validity hypothesis tests confirmed that there were significant variations in pregnancy planning according to age, marital status, educational level, ethnicity, and child order (actual and hypothetical). However, as the hypothesis testing required only unifactorial analyses, I did not seek to establish associations after adjustment for other factors. Hence, the data had the potential for further analysis. In this chapter I used the combined data from the two field tests to retest unifactorial associations and carry out multifactorial analysis in the form of ordinal regression. My aim was for the analyses to inform future research.

In the unifactorial analyses, all variables were significant, including country of birth (which had not been significant previously). In the multifactorial analysis, four variables were significant: marital status, age, child order, and country of birth. However, a number of points must be taken into account in interpreting these findings. Firstly, the Nagelkerke R^2 statistic for the ordinal regression model was 0.442, which means that approximately 44% of the variance of the scores was explained by the model. Although such a level of explanation is acceptable, it still leaves something to be desired. Therefore, it is likely that other factors (i.e. not included in the model) also influence pregnancy planning. Of the factors included in the study, the questions on educational attainment were also somewhat simplistic. Improved assessment of educational attainment in future studies may produce different results. Also, the relatively small number of women from ethnic minority backgrounds must be considered. Although compared to national figures the sample was over-represented by ethnic minorities, the actual number of ethnic minority women was small, particularly when divided into identifiable sub-groups. Consequently, the effect of measurement error on estimates from these small samples may have meant I was unable to detect real differences. The patterns of scores by ethnicity in the unifactorial analysis, the significant association by country of birth in the ordinal regression analysis, and the different socio-demographic compositions of these groups suggest that investigation of the effect of ethnicity on pregnancy planning would be a fruitful line of future research.

As expected, lower scores (i.e. lower levels of pregnancy planning/intention) were

associated with younger women. However, this association was present not just in teenagers but also women in their 20s (a group not normally considered "young" in terms of policy on reproductive health). Lower scores were also more likely to be associated with pregnancies (potentially) leading to the third or more child. This finding mirrors Cartwright's (1970, 1976, 1988) research which was carried out on births only. The strongest association, however, was with marital status The unifactorial analyses demonstrated a clear stepwise decline in scores from women living with their husbands, through women living with their partners, to women living in other situations. This stepwise pattern was also clearly maintained in the regression analysis. One previous study, which had used the categories "planned" and "unplanned", had also shown this stepwise decline (MacDonald et al, 1992), and recent research in the U.S. using data from the National Survey of Family Growth has shown a similar pattern (Manning, 2001). The fact that pregnancies occurring in married and cohabiting partnerships, and outside any cohabiting partnership, seem to have such different circumstances is of great policy relevance. Births to unmarried parents currently comprise about 40% of all births, a proportion that has risen rapidly over the last thirty years (Botting and Dunnell, 2000). The relationship between pregnancy planning and this dramatic social trend remains to be seen. Certainly, from the findings in this study, the circumstances of pregnancies of married, cohabiting, and "lone" women are not comparable.

Summary

In this chapter, I investigated the relationship of six factors (marital status, age, child order, ethnicity, country of birth and educational level) to pregnancy planning, using unifactorial and multifactorial methods. My aim was that the analyses should inform future research, particularly investigation of the factors associated with pregnancy planning. The results of the exploratory analysis indicated that four variables are independently associated with pregnancy planning: martial status, age, child order, and country of birth. In interpreting these findings, however, the relatively small numbers of ethnic minority women in the sample and the somewhat limited questions on educational attainment must be taken into account; real differences may have existed that I was unable to detect. Further, the amount

of variance explained by the regression model, although respectable, suggests that the model was not an optimal explanation. In order to fully delineate the construct of pregnancy planning, future research would need to be based on a sample with sufficient numbers of women in sub-groups of interest and investigate a greater range of potentially associated factors.

Chapter 15: Conclusions

The aim of this study was to develop a measure of unplanned pregnancy that would be valid and reliable and suitable for use in contemporary society. My awareness of the limitations of the existing UK pregnancy planning questions in light of the radical social and demographic changes that had taken place since their development, the lack of recent national population estimates of unplanned pregnancy in the UK, and the calls for a new measure of pregnancy planning from bodies such as the Royal College of Obstetrics and Gynaecology, the Faculty of Public Health, and the Health Education Authority led me to seek funding for this study. Once funded in 1998 (via an MRC special training fellowship), further investigation of the literature revealed a plethora of survey questions intended to assess pregnancy planning but no psychometric measures or scales (i.e. sets of questions with documented reliability and validity). Of the survey questions, I found that none had been preceded by qualitative investigation to inform design, and most questions were directed at pregnancies resulting in births rather than all pregnancies, regardless of outcome. There was also a wide variation in the period of recall of women answering pregnancy planning questions, yet no systematic investigation of the effect of the length of recall on women's responses. (The suggestion from a few studies was that women were more likely to describe a pregnancy as planned if asked after birth rather than during pregnancy.) Finally, findings from the national and international surveys also consistently showed that for a proportion of women pregnancy intentions and contraceptive behaviour were not congruent - a finding which suggested that existing survey questions were failing to capture fully the complexity of the construct.

In order to address the limitations in the measurement of pregnancy planning, I designed a study which aimed to deal with both the definition and the measurement of the construct. To establish a clearer definition, I chose a qualitative (inductive) methodology which allowed the generation of ideas during the data collection process, eventually allowing me to develop a conceptual model of pregnancy planning/intention. I concentrated on lay views of pregnancy planning/intention rather than the views of health professionals and policy

makers in order to develop a generative, and therefore more valid, definition/conceptual model. Also to remedy the omissions I had identified, both women who continued and terminated their pregnancies were included in the sample, and (where possible) women were re-interviewed after the birth of their babies in order to assess the stability of their accounts over time. In the next stage, to establish measurement of the construct, I employed quantitative methods (which were informed by the qualitative findings where applicable). I began by basing item development on the conceptual model, and used piloting and qualitative interviews to establish that the questions were interpreted in the way I intended. I then used standard psychometric techniques to construct the measure and test its reliability and validity (the qualitative findings informing judgements about content and construct validity). As in the qualitative stage, both women continuing and terminating their pregnancies were included in the samples. I assessed the stability of women's answers over two time periods (two weeks later, and some months later after birth), using standard psychometric criteria to judge this form of reliability. Overall, the interplay of qualitative and quantitative methods worked well. The qualitative stage meant that I had a clear idea of what I was trying to measure, and the quantitative stage provided the means of ensuring robust measurement.

The end result of the study was a six-item measure of unplanned pregnancy - the first psychometric measure of this construct. Psychometric testing demonstrated the measure's high internal consistency (Cronbach's alpha >0.90), high stability (short term test-retest coefficient >0.90), and excellent face, content and construct validity. Compared with previous questions used to assess pregnancy planning, the measure has a number of advantages: it makes no assumptions about the nature of women's relationships; it does not rely on women having fully formed childbearing plans; it does not assume a particular form of family building; and it is suitable for use with any pregnancy regardless of outcome. Also, because of its conceptual basis, the measure does not assume that women have clearly defined intentions or behaviour in accordance with their intentions. Women may occupy a range of positions in relation to pregnancy planning, and these are represented in the measure by the range of scores from zero to 12. The range of scores also provides more sophisticated information about pregnancy planning than the dichotomous categories of

planned and unplanned. The measure is also short (only six items) and field testing demonstrated that it was highly acceptable (i.e. easy to understand, inoffensive, and quick to complete), both attributes which make the measure suitable for use in large scale surveys.

The measure, with its conceptual basis, represents a clear break with the forms of measurement found in the previous British surveys and the current U.S. and Demographic and Health Surveys (the Demographic and Health Survey being the main data source of the International Family Planning movement). As such, the measure no longer rests on the assumption that modern (post-demographic transition) societies are populated by individuals who are all highly rational and goal-oriented in terms of their fertility and fertility control; an assumption that Szreter (1996) argues has characterised research on fertility and fertility change in the twentieth century. Instead, the measure allows a range of positions in relation to fertility control to be represented (e.g. actions congruent with intentions, actions inconsistent with intentions, ambivalence in fertility intentions and actions, etc), thereby providing a more complex and more realistic of portrayal of human fertility behaviour. In the same vein, the measure ends the reliance on an "ideal type" of family formation that has characterised much twentieth century demographic and social scientific research, i.e. one marriage, one family, clearly agreed child-number and timing preferences. The concepts of "mistimed" pregnancy (i.e. within in family size desires but incorrect timing) and "unwanted" pregnancy (in excess of desired family size) therefore become redundant - concepts that have been found to be problematic in the U.S. surveys for some time.

The new measure has many potential uses. Firstly, it is a tool with which it will now be possible to produce valid population estimates of unplanned pregnancy (both for the total population and for policy-relevant subgroups), providing valuable information on an important aspect of public health. Secondly, it may be used as an outcome measure in, for example, the evaluation of relevant government policy (e.g. the Sexual Health Strategy and the Teenage Pregnancy Strategy), the evaluation of family planning and sexual health services, and the evaluation of interventions. Currently, rates of abortion and teenage pregnancy tend to be used as proxy measures of unplanned pregnancy; the availability of

a new measure will enable the outcomes of "abortion", "teenage" and "unplanned" pregnancy to be clearly distinguished from one another. Thirdly, as the measure produces a more sophisticated level of information about pregnancy planning than was previously available, more accurate investigation into the factors associated with unplanned pregnancy will be possible. Greater understanding of these factors should assist the design of interventions aimed at reducing unplanned pregnancy. Similarly, the more sophisticated level of information produced by the measure will allow more accurate evaluation of the long term outcomes (both for the mother and the child) of unplanned pregnancies which are continued to term. Information on the long term outcomes of unplanned "continued" pregnancies is currently somewhat limited; the production of reliable evidence will allow the public health implications of these pregnancies to be assessed. Finally, the measure is readily available, easy to use, valid and reliable, and can be included in any study requiring an assessment of pregnancy planning. For instance, studies on topics such as the health of new mothers and their infants, postnatal depression, "time-to-pregnancy" (fertility), folic acid supplementation, and the reproductive outcomes of diabetic women, all regularly rely on some form of assessment of pregnancy planning. Therefore the benefits of improved measurement through use of the new measure will also extend to studies such as these. Overall, the measure has the potential to be widely used in the future.

References

Adams MM, Shulman HB, Bruce C, Hogue C, Brogan D, and The PRAMS Working Group. 1991 The Pregnancy Risk Assessment Monitoring System: design, questionnaire, data collection and response rates *Paediatric and Perinatal Epidemiology* 5:333-346

Adetunji JA. 1998 *Unintended childbearing in developing countries: levels, trends, and determinants* Calverton, Maryland: Macro International Inc.

Adler NE, Tschann JM. 1993 Conscious and preconscious motivation for pregnancy among female adolescents in Lawson A, Rhode DL. *The Politics of Pregnancy: Adolescent Pregnancy, Adolescent Sexuality and Public Policy* New Haven: Yale University Press

Alan Guttmacher Institute. 1999 *Sharing Responsibility: Women, Society and Abortion Worldwide* New York: AGI

Alan Guttmacher Institute. 2000 *Teenagers' Pregnancy Intentions and Decisions: a study of young women in California choosing to give birth* New York: AGI

Allaby MAK. 1995 Risks of unintended pregnancy in England and Wales in 1989 *British Journal of Family Planning* 21:93-94

Allen I, Bourke Dowling S. 1998 *Teenage mothers: decisions and outcomes* London: Policy Studies Institute

Anscombe GEM. 1957 *Intention* Oxford: Blackwell

Armstrong BG, Sloan M. 1989 Ordinal regression models for epidemiologic data *American Journal of Epidemiology* 129:191-204

Armstrong D, Gosling A, Weinman J, Marteau T. 1997 The place of inter-rater reliability in qualitative research: an empirical study *Sociology* 31:597-606

Bachrach CA and Newcomer S. 1999 Contraceptive failure and unintended pregnancy: intended pregnancies and unintended pregnancies: distinct categories or opposite ends of a continuum? *Family Planning Perspectives* 31:251-2

Bailey L. 1999 Refracted selves? A study of changes in self-identity in the transition to motherhood *Sociology* 33;2:335-352

Bankole A, Westoff CF. 1998 The consistency and validity of reproductive attitudes: evidence from Morocco *Journal of Biosocial Science* 30:439-455

Barrett G, Pendry E, Peacock J, Victor CR, Thakar R, Manyonda I.1999 Women's sexuality after childbirth: a pilot study *Archives of Sexual Behavior* 28;2:179-191

Barrett G, Pendry E, Peacock J, Victor CR, Thakar R, Manyonda I. 2000 Women's sexual health after childbirth *British Journal of Obstetrics and Gynaecology* 107;2:186-195

Basso O, Olsen J, Bisanti L, Juul S, Boldsen J and the European Study Group on Infertility and Subfecundity 1995 Are seasonal preferences in pregnancy planning a source of bias in studies of seasonal variation in reproductive outcomes? *Epidemiology* 6:520-524

Basso O, Juul S, Olsen J. 2000 Time to pregnancy as a correlate of fecundity: differential persistence in trying to become pregnant as a source of bias *International Journal of Epidemiology* 29:856-861

Baydar N. 1995 Consequences for children of their birth planning status *Family Planning Perspectives* 27:228-234 and 245

Beckman LJ. 1984 Husbands' and wives' relative influence on fertility decisions and outcomes *Population and Environment* 7:182-197

Bitto A, Gray RH, Simpson JL, Queenan JT, Kambie RT, Perez A, Mena P, Barbato M, Li C, Jennings V. 1997 Adverse outcomes of planned and unplanned pregnancies among users of Natural Family Planning: a prospective study *American Journal of Public Health* 87:338-343

Bland M. 1995 *An Introduction to Medical Statistics* Oxford: Oxford University Press (2nd edition)

Blignault I, Brown LB. 1979 Locus of control and contraceptive knowledge, attitudes and practice *British Journal of Medical Psychology* 52:339-345

Boddard S, Baldwin B. 1996 A survey of women with unplanned pregnancies in Avon, January to March 1994 *British Journal of Family Planning* 22:42-45

Bone M. 1973 *Family Planning Services in England and Wales* London: HMSO

Bone M. 1978 *The Family Planning Services: changes and effects* London: Department of Health and Social Security

Bornstein RF, Masling JM. (Eds.) 1998 *Empirical Perspectives on the Psychoanalytic Unconscious* Washington DC: American Psychological Association

Botting B and Dunnell K. 2000 Trends in fertility and contraception in the last quarter of the 20th century *Population Trends* 100:32-39

Bowling A. 1997 *Research Methods in Health: investigating health and health services* Buckingham: Open University Press

Boyle GJ. 1991 Does item homogeneity indicate internal consistency or item redundancy in psychometric scales? *Personality and Individual Differences* 12:291-294

Brand M. 1984 *Intending and Acting: Toward a Naturalized Action Theory* London: MIT Press

Brown SS and Eisenberg L. (Eds.) *1995 The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families* Washington: National Academy Press

Brown S, Lumley J. 1998 Maternal health after childbirth: results of an Australian population based survey *British Journal of Obstetrics and Gynaecology* 105:156-161

Campbell BK, Barnlund DC. 1977 Communication patterns and problems of pregnancy *American Journal of Orthopsychiatry* 47:134-139

Cartwright A. 1970 *Parents and Family Planning Services* London: Routledge Kegan Paul

Cartwright A. 1976 *How Many Children?* London: Routledge and Kegan Paul

Cartwright A. 1988 Unintended pregnancies that lead to babies *Social Science and Medicine* 27;3:249-254

Cates W. 1996 Contraception, unintended pregnancies, and sexually transmitted diseases: why isn't a simple solution possible? *American Journal of Epidemiology* 143:311-318

Cates W. 2001 The NIH Condom Report: The glass is 90% full *Family Planning Perspectives* 33:231-233

Cates W, Spieler J. 2001 Contraception, unintended pregnancies, and sexually transmitted infections: still no simple solutions *Sexually Transmitted Diseases* 28:552-554

Cattell RB. 1952 *Factor Analysis: an Introduction and Manual for the Psychologist and Social Scientist* Westport, Connecticut: Greenwool Press

Chow LP, Rider RV, Hou WI. 1987 Contraceptive and fertility behavior of family planning clinic dropouts: a Maryland study *American Journal of Public Health* 77:975-978

Clarke M. 1988 Fertility and legal abortion in England and Wales: performance indicators for family planning services *BMJ* 297:832-833

Cleland J, and Scott C. 1987 *The World Fertility Survey: an assessment* Oxford: Oxford University Press

Cleland J, Johnson-Acsadi G, Marckwardt A. 1987 The core questions. In Cleland J, and Scott C. *The World Fertility Survey: an assessment* Oxford: Oxford University Press

ClintonJF, and Kelber ST. 1993 Stress and coping in fathers of newborns: comparisons of planned versus unplanned pregnancy *International Journal of Nursing Studies* 30:437-443

Cobliner WG, Schulman H, Smith V. 1976 Dynamics of contraceptive failures *Journal of Psychology* 94:153-162

Cohen CL, Dunkel-Schetter C, Lydon J. 1993 Pregnancy decision making: predictors of early stress and adjustment *Psychology of Women Quarterly* 17:223-239

Coombs LC, Fernandez D. 1978 Husband-wife agreement about reproductive goals *Demography* 15:57-73

Cronbach LJ. 1951 Coefficient alpha and the internal structure of tests *Psychometrika* 16:297-334

Cronbach LJ, Meehl PE. 1955 Construct validity in psychological tests *Psychological Bulletin* 52:281-302

Curtis KM, Savitz DA, Weinberg CR, Arbuckle TE. 1999 The effect of pesticide exposure on time to pregnancy *Epidemiology* 10:112-117

Dancey CP, Reidy J. 2002 (2nd edition) *Statistics Without Maths for Psychology: using SPSS for Windows* London: Prentice Hall

Davidson D. 1970 *Essays on actions and events* Oxford: Clarendon

Davidson AR, Kalmuss D, Cushman LF, romero D, Heartwell S, Rulin M. 1997 Injectable contraceptive discontinuation and subsequent unintended pregnancy among low-income women *American Journal of Public Health* 87:1532-1534

Delbanco S, Lundy J, Hoff T, Parker M, and Smith MD. 1997 Public knowledge and perceptions about unplanned pregnancy and contraception in three countries *Family Planning Perspectives* 29:70-75

Delgado-Rodriguez M, Gomez-Olmedo M, Bueno-Cavanillas A, Galvez-Vargas R. 1997 Unplanned pregnancy as a major determinant in inadequate use of prenatal care *Preventive Medicine* 26:834-838

Denton AB, Scott KE. 1994 Unintended and unwanted pregnancy in Halifax: the rate and associated factors *Canadian Journal of Public Health* 85:234-238

Department of Health. 1992 *The Health of the Nation* London: HMSO

Department of Health. 2001 *The National Strategy for Sexual Health and HIV* London: DoH

DeVellis RF. 1991 *Scale Development: Theory and Applications* London: Sage

Dietz PM, Adams MM, Spitz AM, Morris L, Johnson CH and the PRAMS Working Group. 1999 Live births resulting from unintended pregnancies: is there variation among States? *Family Planning Perspectives* 31:132-136

Donner A, Eliasziw M. 1987 Sample size requirements for reliability studies *Statistics in Medicine* 6:441-448

Donovan JL, Frankel SJ, Eyles JD. 1993 Assessing the need for health status measures *Journal of Epidemiology and Community Health* 47:158-162

Dryfoos JG. 1982 Contraceptive use, pregnancy intentions and pregnancy outcomes among U.S. women *Family Planning Perspectives* 14:81-94

Dunn G. 1989 *Design and Analysis of Reliability Studies: the statistical evaluation of measurement errors* London: Edward Arnold

Dunnell K. 1979 *Family Formation 1976* London: HMSO

Dye TD, Wojowycz MA, Aubry RH, Quade J, Kilburn H. 1997 Unintended pregnancy and breast-feeding behavior *American Journal of Public Health* 87:17091711

Everett CB. 1991 Unintended pregnancies and contraceptive use *BMJ* 302:789-790

Faculty of Public Health Medicine 1991 *UK Levels of Health* London: FPHM

Faculty of Public Health Medicine 1994 *Measuring the Effectiveness of Contraceptive Services* Guidelines for Health Promotion, no.37 London: FPHM

Family Planning Association 1999 *Misconceptions: Women's Attitudes to Planning and*

Preventing Pregnancy London: FPA

Ferguson E, Cox T. 1993 Exploratory factor analysis: a users' guide *International Journal of Selection and Assessment* 1:84-94

Fergusson DM, Horwood LJ. 1983 Childhood disadvantage and the planning of pregnancy *Social Science and Medicine* 17:1223-1227

Finlay A. 1996 Teenage pregnancy, romantic love and social science: an uneasy relationship in James V and Gabe J. (eds.) *Health and Sociology of the Emotions* Oxford: Balckwell

Finer LB and Zabin LS. 1998 Does the timing of the first family planning visit still matter? *Family Planning Perspectives* 30:30-33 and 42

Fischer W. 1971 The problem of unconscious motivation. In: Giorgi A, Fischer WF, von Eckartsberg R. (eds.) *Duquesne Studies in Phenomenological Psychology vol. 1* Pittsburgh: Duquesne University Press

Fischer RC, Stanford JB, Jameson P, DeWitt MJ. 1999 Exploring the concepts of intended, planned, and wanted pregnancy *Journal of Family Practice* 48:117-122

Fisher K. 2000 Uncertain aims and tacit negotiation: birth control practices in Britain, 1925-50 *Population and Development Review* 26(2):295-317

Fleiss JL, Cohen J. 1973 The equivalence of weighted kappa and the intraclass correlation coefficient as measures of reliability *Educational and Psychological Measurement* 33:613-619

Fleissig A. 1991 Unintended pregnancies and the use of contraception: changes from 1984 to 1989 *BMJ* 302:147

Fletcher A, Gore S, Jones D, Fitzpatrick R, Spiegelhalter D, Cox D. 1992 Quality of life measures in health care. II: Design, analysis and interpretation *BMJ* 305:1145-8

Foddy W. 1993 *Constructing Questions for Interviews and Questionnaires: theory and practice in social research* Cambridge: Cambridge University Press

Forrest JD. 1994 Epidemiology of unintended pregnancy and contraceptive use *American Journal of Obstetrics and Gynecology* 170:1485-1489

Freedman R, Whelpton PK, Campbell AA. 1959 *Family Planning Sterility and Population Growth* New York: McGraw Hill

Freud S. 1997 *Selected Writings* New York: BMC

Fried ES, Udry JR. 1979 Wives' and husbands' expected costs and benefits of childbearing as predictors of pregnancy *Social Biology* 26:265-274

Fu H, Darroch JE, Haas T, and Ranjit N. 1999 Contraceptive failure rates: new estimates from the 1995 National Survey of Family Growth *Family Planning Perspectives* 31:56-63

Gazmararian JA, Adams M, Saltzman LE, Johnson CH, Bruce C, Marks JS, Zahniser SC, and the PRAMS working group 1995 The relationship between pregnancy intendedness and physical violence in mothers of newborns *Obstetrics and Gynecology* 85:1031-1038

General Register Office for Scotland. 2000 *Annual Report, 1999* (www.gro-scotland.gov)

General Register Office for Scotland. 2001 *Annual Report, 2000* (www.gro-scotland.gov)

Gibbs RW. 1999 *Intentions in the Experience of Meaning* Cambridge: Cambridge University Press

Gilbert AN, Wysocki CJ. 1992 Hand preference and age in the United States *Neuropsychologia* 30:601-608

Gilchrist AC, Hannaford PC, Frank P, Kay CR. 1995 Termination of pregnancy and psychiatric morbidity *British Journal of Psychiatry* 167:243-248

Glaser B, Strauss A. 1967 *The Discovery of Grounded Theory* Chicago: Aldine Publishing Co

Glazener CMA, Abdalla M, Stroud P, Naji S, Templeton A, Russell IT. 1995 Postnatal maternal morbidity: extent, causes, prevention and treatment *British Journal of Obstetrics and Gynaecology* 102:282-287

Glei DA. 1999 Measuring contraceptive use patterns among teenage and adult women Family Planning Perspectives 31:73-80

Goffman E. 1956 Presentation of Self in Everyday Life Harmondsworth: Penguin

Green J. 1997 *Risk and Misfortune: the Social Construction of Accidents* London: UCL Press

Grimes DA. 1986 Unplanned pregnancies in the United States *Obstetrics and Gynecology* 67:438-442

Guilford JP. 1954 (2nd edition) *Psychometric Methods* New York: McGraw-Hill

Guyatt GH. 2000 Making sense of quality-of-life data *Medical Care* 38;(Supplement II):II,175-II,179

Hall, L. 2000 *Sex, Gender and Social Change in Britain Since 1880* London: Macmillan

Hall DE. 2001 *Literary and Cultural Theory: From Basic Principles to Advanced Applications* Boston: Houghton Mifflin Company

Hardyck C, Petrinovich LF. 1977 Left-handedness *Psychological Bulletin* 84:385-404

Harris K, Campbell E. 1999 The plans in unplanned pregnancy: secondary gain and the partnership *British Journal of Medical Psychology* 72:105-120

Havlicek LL, Peterson NL. 1977 Effect of the violation of assumptions upon significance levels of the Pearson *r* *Psychological Bulletin* 84:373-377

Hawkes G. 1996 *A Sociology of Sex and Sexuality* Buckingham: Open University Press

Hawthorne G, Richardson J, Osborne R. 1999 The Assessment of Quality of Life (aQoL) instrument: a psychometric measure of health-related quality of life *Quality of Life Research* 8:209-224

Hellerstedt WL, Pirie PL, Lando HA, Curry SJ, McBride CM, Grothaus LC, Nelson JC. 1998 Differences in preconceptional and prenatal behaviors in women with intended and unintended pregnancies *American Journal of Public Health* 88:663-666

Henshaw SK. 1998 Unintended pregnancy in the United States *Family Planning Perspectives* 30:24-29 and 46

Hepper PG, Shahidullah S, White R. 1991 Handedness in the human fetus. *Neuropsychologia* 29:1107-1111

Holland J, Ramazanoglu C, Scott S, Sharpe S, Thomson R. 1992 Pressure, resistance, empowerment: young women and the negotiation of safer sex. In Aggleton P, Davies P, Hart G. (eds.) *AIDS: Rights, Risk and Reason* London: Falmer Press

Holland J, Ramazanoglu, Sharpe S, Thomson R. 1998 *The Male in the Head: young people, heterosexuality and power* London: Tufnell Press

Ineichen B. 1986 Contraceptive experience and attitudes to motherhood of teenage mothers *Journal of Biosocial Science* 18:387-394

Information and Statistics Division of NHS in Scotland. 2000 *Abortion Statistics Scotland 1998 and 1999* Health Briefing, number 00/11, July 2000

Ingham R, Van Zessen G. 1995 From individual properties to interactional processes. In Van Campenhoudt L, Cohen M, Guizzardi G, and Hausser D. (eds.) *Sexual Interactions and HIV Risk: new conceptual perspectives in European research* London: Taylor and Francis

Jensen TK, Scheike T, Keiding N, Schaumburg I, Grandjean P. 1999 Fecundability in relation to body mass and menstrual cycle patterns *Epidemiology* 10:422-428

Jensen TK, Scheike T, Keiding N, Schaumburg I, Grandjean P. 2000 Selection bias in determining the age dependence of waiting time to pregnancy *American Journal of Epidemiology* 152:565-572

Jones EF, Forrest JD, Henshaw SK, Silverman J, Torres A. 1988 Unintended pregnancy, contraceptive practice and family planning services in developed countries *Family Planning Perspectives* 20:53-67

Joyce TJ, Kaestner R, Korenman S. 2000 The effect of pregnancy intention on child development *Demography* 37:83-94

Joyce T, Kaestner R, Korenman S. 2002 On the validity of retrospective assessments of pregnancy intention *Demography* 39:199-213

Jurich J. 1984 The relationship of modernity of sex roles to pregnancy planning *Sociological Focus* 17:223-242

Juul S, Keiding N, Tvede M on behalf of the European Infertility and Subfecundity Study Group. 2000 Retrospectively sampled time-to-pregnancy data may make age-decreasing fecundity look increasing *Epidemiology* 11:717-719

Kaharuza FM, Sabroe S, Basso O. 2001 Choice and chance: determinants of short interpregnancy intervals in Denmark *Acta Obstetricia et Gynecologica Scandinavica* 80:532-538

Kahn JG, Brindis CD, Glei DA. 1999 Pregnancies averted among U.S. teenagers by the use of contraceptives *Family Planning Perspectives* 31:29-34

Kaufmann RB, Morris L, and Spitz AM. 1997 Comparison of two question sequences for assessing pregnancy intentions *American Journal of Epidemiology* 145:810-816

Kero A, Hogberg U, Jacobsson L, Lalos A. 2001 Legal abortion: a painful necessity *Social Science and Medicine* 53:1481-1490

Kiernan KE. 1997 Becoming a young parent: a longitudinal study of associated factors *British Journal of Sociology* 48:406-428

Kline P. 1986 *A Handbook of Test Construction: Introduction to psychometric design* London: Methuen

Kline P. 1998 *The New Psychometrics: Science, Psychology and Measurement* London: Routledge

Kline P. 2000 *A Psychometric Primer* London: Free Association Books

Klitsch M and Singh S. 1996 *Are women achieving their childbearing goals?* New York: Alan Guttmacher Institute (www.agi-usa.org/pubs/ib9.html)

Kopec JA, Esdaile JM, Abrahamowicz M, Abenhaim L, Wood-Dauphinee S, Lamping DL, Williams JI. 1996 The Quebec Back Pain Disability Scale: conceptualisation and development *Journal of Clinical Epidemiology* 49:151-161

Kost K, Forrest JD. 1995 Intention status of U.S. births in 1988: differences by mothers' socioeconomic and demographic characteristics *Family Planning Perspectives* 27:11-17

Kost K, Landry DJ, Darroch JE. 1998 Predicting maternal behaviors during pregnancy: does intention status matter? *Family Planning Perspectives* 30:79-88

Laizner AM, Jeans ME. 1990 Identification of predictor variables of a postpartum emotional reaction *Health Care for Women International* 11:191-207

Landis JR, Koch GG. 1977 The measurement of observer agreement for categorical data *Biometrics* 33:159-174

Lane A, Keville R, Morris M, Kinsella A, Turner M, Barry S. 1997 Postnatal depression and elation among mothers and their partners: prevalence and predictors *British Journal of Psychiatry* 171:550-555

Leathard A. 1980 *The Fight for Family Planning: the Development of Family Planning Services in Britain* 1921-74 London: Macmillan

Leathers SJ, Kelley MA. 2000 Unintended pregnancy and depressive symptoms among first-time mothers and fathers *American Journal of Orthopsychiatry* 70:523-531

Lee PR, Stewart FH. 1995 Editorial: failing to prevent unintended pregnancy is costly *American Journal of Public Health* 85:479-480

Lester C, Farrow S. 1988 Unplanned pregnancies at antenatal clinic *Midwifery* 4:184-189

Liang MH. 2000 Longitudinal construct validity: establishment of clinical meaning in patient evaluative instruments *Medical Care* 38;(Supplement II): II,84-II,90.

Lightbourne RE. 1987 Reproductive preferences and behaviour. In Cleland J, and Scott C. *The World Fertility Survey: an assessment* Oxford: Oxford University Press

Lindberg LD, Sonenstein FL, Ku L, Levine G. 1997 Young men's experience with condom breakage *Family Planning Perspectives* 29:128-131 and 40

Lo SV, Kaul S, Kaul R, Cooling S, Calvert JP. 1994 Teenage pregnancy - contraceptive use and non-use *British Journal of Family Planning* 20:79-83

Loewenthal KM. 2001 (2nd edition) *An Introduction to Psychological Tests and Scales* London: Psychology Press

London K, Peterson L, Piccinino L. 1995 The National Survey of Family Growth: principal source of statistics on unintended pregnancy: supplement to chapter two. in Brown SS and Eisenberg L. (eds.) 1995 *The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families* Washington: National Academy Press

Luker K. 1975 *Taking Chances: Abortion and the Decision not to Contracept* Los Angeles: University of California Press

Luker K. 1999 Contraceptive failure and unintended pregnancy: a reminder that human behavior frequently refuses to conform to models created by researchers *Family Planning Perspectives* 31:248-249

Lydick E. 2000 Approaches to the interpretation of quality-of-life scales *Medical Care*

38;(Supplement II):II,180-II,183

Lyons C. 1996 At risk of unplanned pregnancy in Brighton Health Authority *British Journal of Family Planning* 22:38-42

MacDonald LD, Peacock JL, Anderson HR. 1992 Marital status: association with social and economic circumstances, psychological state and outcomes of pregnancy *Journal of Public Health Medicine* 14:26-34

MacIntyre S, Cunningham-Burley S. 1993 Teenage pregnancy as a social problem: a perspective from the United Kingdom in Lawson A, Rhode DL. *The Politics of Pregnancy: Adolescent Pregnancy, Adolescent Sexuality and Public Policy* New Haven: Yale University Press

Macro International. 1994 *Women's Lives and Experiences: a decade of research findings from the Demographic and Health Surveys* Program Calverton, Maryland: Macro International Inc.

Macro International. 1995a *Model 'A' Questionnaire, with commentary for high contraceptive prevalence countries* Demographic and health Surveys, phase 3, number 1. Calverton, Maryland: Macro International Inc.

Macro International. 1995b *Model 'B' Questionnaire, with commentary for low contraceptive prevalence countries* Demographic and health Surveys, phase 3, number 2. Calverton, Maryland: Macro International Inc.

Malle BF and Knobe J. 1997 The folk concept of intentionality *Journal of Experimental Social Psychology* 33:101-121

Manning WD. 2001 Childbearing in cohabiting unions: racial and ethnic differences *Family Planning Perspectives* 33:217-223

Mason J. 1996 *Qualitative Researching* London: Sage

Mauldon J and Delbanco S. 1997 Public perceptions about unplanned pregnancy *Family Planning Perspectives* 29:25-29 and 40

Mayer JP. 1997 Unintended childbearing, maternal beliefs, and delay of prenatal care *BIRTH* 24:247-252

McCann HJ. 1986 Intrinsic Intentionality. In Audi R. (ed.) *Action, Decision and Intention* Dordrecht, Holland: D. Reidel Publishing Company

McColl AJ, Gulliford MC. 1993 *Population Health Outcome Indicators for the NHS* London: Faculty of Public Health Medicine

McCullagh P. 1980 Regression models for ordinal data *Journal of the Royal Statistical Society* 42:109-142

McDonnell R, Johnson Z, Doyle A, Sayers G. 1999 Determinants of folic acid knowledge and use among antenatal women *Journal of Public Health Medicine* 21:145-149

McDowell I, Newell C. 1996 (2nd edition) *Measuring Health: A Guide to Rating Scales and Questionnaires* Oxford: Oxford University Press

McGovern E, Moss H, Grewal G, Taylor A, Bjornsson S, Pell J. 1997 Factors affecting the use of folic acid supplements in pregnant women in Glasgow *British Journal of General Practice* 47:635-637

McGraw KO, Wong SP. 1996 Forming inferences about some intraclass correlation coefficients *Psychological Methods* 1:30-46

McLaren A. 1990 *A History of Contraception: From Antiquity to the Present Day* London:

Blackwell

Metson D. 1988 Lessons from an audit of unplanned pregnancies *BMJ* 297:904-906

Michell J. 1997 Quantitative science and the definition of measurement in psychology *British Journal of Psychology* 88:355-383

Miller WB. 1974 Relationships between the intendedness of conception and the wantedness of pregnancy *Journal of Nervous and Mental Disease* 159:396-406

Miller WB. 1986 Why some women fail to use their contraceptive method: a psychological investigation Family Planning Perspectives 18(1):27-32

Miller WB. 1994 Reproductive decisions: how we make them and how they make us *Advances in Population: psychological perspectives* 2:1-27

Miller WB and Pasta DJ. 1994 The psychology of child timing: a measurement instrument and a model *Journal of Applied Social Psychology* 24:218-250

Miller WB and Pasta DJ. 1996 Couple disagreement: effects on the formation and implementation of fertility decisions *Personal Relationships* 3:307-336

Montgomery MR, Lloyd CB, Hewett PC, Heuveline P. 1997 *The consequences of imperfect fertility control on children's survival, health, and schooling* Analytical Report 7. Calverton, Maryland: Macro International Inc

Moos MK, Petersen R, Meadows K, Melvin CL, Spitz AM. 1997 Pregnant women's perspectives on intendedness of pregnancy *Women's Health Issues* 7:385-392

Mosher WD and Bachrach CA. 1996 Understanding U.S. fertility: continuity and change in the National Survey of Family Growth, 1988-1995 *Family Planning Perspectives* 28:4-

Najman JM, Morrison J, Williams G, Andersen M, Keeping JD. 1991 The mental health of women six months after they give birth to an unwanted baby: a longitudinal study *Social Science and Medicine* 32:241-247

Neal AG, Groat HT. 1980 Fertility decision making, unintended births, and the social drift hypothesis: a longitudinal study *Population and Environment* 3:221-236

Newman M, Bardsley M, Morgan D, Jacobson B. 1997 *Contraception and abortion services in London* London: The Health of Londoners Project

Norusis MJ. 1999 *SPSS Regression Models 10.0* Chicago: SPSS Inc

Nunnally JC. 1970 *Introduction to Psychological Measurement* New York: McGraw-Hill

Nunnally JC. 1978 (2nd edition) *Psychometric Theory* New York: McGraw-Hill

O'Campo P, Faden RR, Gielen AC, Kass N, Anderson J. 1993 contraceptive and sexual practices among single women with an unplanned pregnancy: partner influences *Family Planning Perspectives* 25:215-219

Office for National Statistics. 2000 *Birth Statistics: Review of the registrar General on births and patterns of family building in England and Wales, 1999.* Series FM1 no.28. London: Stationery Office

O'Leary M, McDonnell R, Johnson H. 2001 Folic acid and prevention of neural tube defects in 2000 improved awareness - low peri-conceptional uptake *Irish Medical Journal* 94:180-181

Olsen J, Andersen PK. 1999 We should monitor human fecundity, but how? A suggestion

for a new method that may also be used to identify determinants of low fecundity *Epidemiology* 10:419-421

Orr ST, Miller A, James SA, Babones S. 2000 Unintended pregnancy and preterm birth *Paediatric and Perinatal Epidemiology* 14:309-313

Perelle IB, Ehrman L. 1994 An international study of human handedness: the data *Behavior Genetics* 24:217-227

Petersen R, Moos MK. 1997 Defining and measuring unintended pregnancy: issues and concerns *Women's Health Issues* 7:234-240

Petersen R, Gazmararian J, Andersen Clark K, Green DC. 2001How contraceptive use patterns differ by pregnancy intention: implications for counseling *Women's Health Issues* 11:427-435

Peterson LS, Oakley D, Potter LS, Darroch JE. 1998 Women's efforts to prevent pregnancy: consistency of oral contraceptive use *Family Planning Perspectives* 30:19-23

Peterson LS and Mosher WD. 1999 Contraceptive failure and unintended pregnancy: Options for measuring unintended pregnancy in Cycle 6 of the National Survey of Family Growth *Family Planning Perspectives* 31:252-253

Phoenix A. 1991 *Young Mothers?* Oxford: Polity

Piccinino L and Peterson LS. 1999 Ambivalent attitudes and unintended pregnancy. In: Severy LJ and Miller W. (eds.) *Advances in Population: Psychosocial Perspectives vol.3* Philadelphia: Jessica Kingsley Publishers

Pill, R. and Stott, N.C.H. 1982 Concepts of illness causation and responsibility: some preliminary data from a sample of working class mothers, *Social Science and Medicine,* 16,

43-52

Pill R and Stott NCH. 1985 Choice or chance: further evidence on ideas of illness and responsibility for health *Social Science and Medicine* 20:981-991

Price SJ, Barrett G, Smith C, Paterson C. 1997 Use of contraception in women who present for termination of pregnancy in inner London *Public Health* 111:377-382

Ranjit N, Bankole A, Darroch JE, Singh S. 2001 Contraceptive failure in the first two years of use: differences across socioeconomic subgroups *Family Planning Perspectives* 33:19-27

R.C.O.G. 1991 Report of the RCOG Working Party on Unplanned Pregnancy. Royal College of Obstetricians and Gynaecologists: London

Reardon DC, Cougle JR. 2002 Depression and unintended pregnancy in the National Longitudinal Survey of Youth: a cohort study *BMJ* 324:151-152

Reingold EM, Merikle PM. 1993 Theory and measurement in the study of unconscious processes. In Davies M and Humphreys GW. (Eds.) *Consciousness: Psychological and Philosophical Essays* Oxford: Blackwell

Remennick LI, Segal R. 2001 Socio-cultural context and women's experiences of abortion: Israeli women and Russian immigrants compared *Culture, Health and Sexuality* 3:49-66

Ritchie J, Spencer L. 1994 Qualitative data analysis for applied policy research. In: Bryman A, Burgess R. (Eds.) *Analysing Qualitative Data* London: Routledge

Roe KV, Drivas A. 1993 Planned conception and infant functioning at age three months: a cross -cultural study *Americal Journal of Orthopsychiatry* 63:120-125

Rosenfeld J, Everett KD. 1996 Factors related to planned and unplanned pregnancies *Journal of Family Practice* 43:161-166

Rothstein AA. 1977 Men's reactions to their partners' elective abortions *American Journal of Obstetrics and Gynecology* 128:831-837

Russell-Brown P, Piedrahita C, Foldesy R, Steiner M, Townsend J. 1992 Comparison of condom breakage during human use with performance in laboratory testing *Contraception* 45:429-437

Ryder NB, Westoff CF. 1971 *Reproduction in the United States, 1965* New Jersey: Princeton University Press

Sable MR. 1999 Contraceptive failure and unintended pregnancy: pregnancy intentions may not be a useful measure for research on maternal and child health outcomes *Family Planning Perspectives* 31:249-250

Sable MR, Spencer JC, Stockbauer JW, Schramm WF, Howell V, Herman AA. 1997 Pregnancy wantedness and adverse pregnancy outcomes: differences by race and medicaid status *Family Planning Perspectives* 29:76-81

Scott SC, Goldberg MS, Mayo NE. 1997 Statistical assessment of ordinal outcomes in comparative studies *Journal of Clinical Epidemiology* 50:45-55

Seale C. 1999 *The Quality of Qualitative Research* London: Sage

Searle JR. 1983 *Intentionality* Cambridge: Cambridge University Press

Sen S, Manzoor A, Deviasumathy M, Newton C. 2001 Maternal knowledge, attitude and practice regarding folic acid intake during the periconceptional period *Public Health Nutrition* 4:909-912

Shaw D. 1998 *Reason and Feeling in Hume's Action Theory and Moral Philosophy: Hume's reasonable passion* Lampeter: Edwin Mellen Press

Siegel S, Castellan NJ. 1988 (2nd edition) *Nonparametric Statistics for the Behavioral Sciences* New York: McGraw-Hill

Smith T. 1990 Unwanted pregnancies: high abortion rates indicate failure of family planning services *BMJ,* 300:1154

Smith C, McElnay C. 1994 Measuring the need for contraceptive services: findings from a needs assessment survey *British Journal of Family Planning* 20:88-91

Social Exclusion Unit. 1999 *Teenage Pregnancy* London: HMSO

Steinlauf B. 1979 Problem-solving skills, locus of control, and the contraceptive effectiveness of young women *Child Development* 50:268-271

Stewart TM, Brown EH, Venn A, Mbizvo MT, Farley TMM, Garrett C, Baker HWG. 2001 Feasibility of surveillance of changes in human fertility and semen quality *Human Reproduction* 16:177-187

Strauss AL. 1997 *Qualitative Analysis for Social Scientists* Cambridge: Cambridge University Press

Streiner DL. 1994 Sample-size formulae for parameter estimation *Perceptual and Motor Skills* 78:275-284

Streiner DL, Norman GR. 1995 (2nd edition) *Health Measurement Scales: A Practical Guide to their Development and Use* Oxford: Oxford University Press

Sulak PJ, Haney AF. 1993 Unwanted pregnancies: understanding contraceptive use and

benefits in adolescents and older women *American Journal of Obstetrics and Gynecology* 168:2042-8

Szreter S. 1996 *Fertility, Class and Gender in Britain, 1860-1940* Cambridge: Cambridge University Press

Tabberer S, Hall C, Prendergast S, Webster A. 2000 *Teenage pregnancy and choice: abortion or motherhood: influences on the decision* York: Joseph Rowntree Foundation

Testa MA. 2000 Interpretation of quality-of-life outcomes *Medical Care* 38;(Supplement II):II,166-II,174

Thomson E, McDonald E, Bumpass LL. 1990 Fertility desires and fertility: hers, his, and theirs *Demography* 27:579-588

Trussell J, Leveque JA, Koenig JD, London R, Borden S, Henneberry J, LaGuardia KD, Stewart F, Wilson TG, Wysocki S, Strauss M. 1995 The economic value of contraception: a comparison of 15 methods *American Journal of Public Health* 85:494-503

Trussell J, and Vaughan B. 1999 Contraceptive failure, method-related discontinuation and resumption of use: results from the 1995 National Survey of Family Growth Family *Planning Perspectives* 31:94-72 and 93

Trussell J, Vaughan B, Stanford J. 1999 Are all contraceptive failures unintended pregnancies? Evidence from the 1995 National Survey of Family Growth *Family Planning Perspectives* 31:246-7, 260

UNICEF. 1993 *The Progress of Nations: the nations of the world ranked according to their achievements in health, nutrition, education, family planning, and progress for women* New York: UNICEF

United Nations. 1987 *Fertility Behaviour in the Context of Development: Evidence from the World Fertility Survey* Population Studies, no.100 New York: United Nations

Ware JE, Keller SD. 1996 Interpreting General Health Measures. In: Spilker B (ed.) *Quality of Life and Pharmacoeconomics* Philadelphia: Lippincott-Raven Publishers (2nd edition)

Ware JE, Snow KK, Kosinski M, Gandek B. 1993 *SF-36 Health Survey: manual and interpretation guide* Boston: The Health Institute

Warner R, Appleby L, Whitton A, Faragher B. 1996 Demographic and obstetric risk factors for postnatal psychiatric morbidity *British Journal of Psychiatry* 168:607-611

Warren KC, Johnson RW. 1989 Family environment, affect, ambivalence and decisions about unplanned adolescent pregnancy *Adolescence* 24:505-522

Webb S, Holman D. 1992 A survey of contraceptive use and unplanned pregnancy in Perth, Western Australia *Australian Journal of Public Health* 16:382-386

Weeks J. 1989. *Sex, Politics and Society: the Regulation of Sexuality since 1800* London: Longman

Wellings K. 1997 *Report of the HEA's Expert Working Group on Teenage Motherhood and Lone Parenthood* London: Health Education Authority

Wellings K, Wadsworth J, Johnson A, Field J. 1996 *Teenage Sexuality, Fertility and Life Chances: a report prepared for the Department of Health* London: LSHTM

Westen D. 1998 Unconscious thought, feeling, and motivation: the end of a century-long debate. In: Bornstein RF, Masling JM. (eds.) *Empirical Perspectives on the Psychoanalytic Unconscious* Washington DC: American Psychological Association

Westoff CF. 1988 Unintended pregnancy in America and abroad *Family Planning Perspectives* 20:254-261

Westoff CF. 1991 *Reproductive Preferences: A Comparative View* DHS Comparative Studies, no.3. Columbia, Maryland: Institute for Resource Development

Westoff CF and Ryder NB. 1977 *The Contraceptive Revolution* New Jersey: Princeton University Press

While AE. 1990 The incidence of unplanned and unwanted pregnancies among live births from health visitor records *Child: care, health and development* 16:219-226

Williams LB. 1991 Determinants of unintended childbearing among ever-married women in the United States: 1973-1988 *Family Planning Perspectives* 23:212-215 (missing page of references)

Williams LB. 1994 Determinants of couple agreement in U.S. fertility decisions *Family Planning Perspectives* 26:169-173

Williams LB, and London KA. 1994 Changes in the planning status of births to ever-married U.S. women, 1982-1988 *Family Planning Perspectives* 26:121-124

Williams SP, Frank ML, Ilegbodu A, Sangi-Haghpeykar H, Corboy JE, Poindexter AN. 1997 Factors associated with unintended pregnancy *Advances in Contraception* 13:429-438

Williams L, Abma J, Piccinino LJ. 1999 The correspondence between intention to avoid childbearing and subsequent fertility: a prospective analysis *Family Planning Perspectives* 31:220-227

Williams L, Sobieszczyk T, Perez AE. 2001 Consistency between survey and interview data concerning pregnancy wantedness in the Philippines *Studies in Family Planning*

32:244-253

Woodward VM. 1995 Psychosocial factors influencing teenage sexual activity, use of contraception and unplanned pregnancy *Midwifery* 11:210-216

Wyrwich KW, Nienaber NA, Tierney WM, Wolinsky FD. 1999 Linking clinical relevance and statistical significance in evaluating intra-individual changes in health-related quality of life *Medical Care* 37:469-478

Zabin LS. 1999 Contraceptive failure and unintended pregnancy: ambivalent feelings about parenthood may lead to inconsistent contraceptive use - and pregnancy *Family Planning Perspectives* 31:250-251

Zabin LS, Huggins GR, Emerson MR, Cullins VE. 2000 Partner effects on a woman's intention to conceive: 'not with this partner' *Family Planning Perspectives* 32:39-45

APPENDIX 1

Pregnancy status questions in sub-national U.S. studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Cobliner et al, 1976	481 women attending gynaecology outpatients in New York, 1974-75	Planned and unplanned	"This consecutive sample fell naturally into two groups and two subcategories. One group were women who had planned their pregnancies, while those in the other group had not. One subcategory included women carrying their pregnancies to term. Those in the other had their pregnancies interrupted by request."
Campbell and Barnlund, 1977	99 women from San Francisco family planning clinics. Group 1: Multiple unplanned pregnancies. Group 2: Never pregnant, sexually active for at least three years	Unplanned	Not stated.
Rothstein, 1977	60 women attending for TOP accompanied by partners at Bronx Municipal Hospital, in 1973	Whether pregnancy was planned: 1) yes; 2) not completely; 3) Not at all	Not stated.
Steinlauf, 1979	115 women attending an abortion service or family planning clinic, New York. Identifying women ever experiencing unplanned pregnancy.	Unplanned	Not stated.
Neal and Groat, 1980	336 women in 1971, followed up from an initial sample of 700 mothers in 1963	Unintended	"We drew on our responses to our 1963 question: 'Do you want to have another child?'. Thus subsequent births to subjects who responded negatively or ambivalently to this question are referred to as 'unintended'.

Pregnancy status questions in sub-national U.S. studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Jurich, 1984	59 primiparous married women, delivering at a maternity hospital in a mid-west city.	Planned and unplanned	I'm going to read several statements about the planning of your pregnancy and I would like you to tell me which one best describes your pregnancy: 1) We were trying to get pregnant 2) We were trying to avoid pregnancy now, but we did plan on having children sometime. 3) We weren't trying to get pregnant, but we weren't doing anything to avoid it. 4) We were trying to avoid pregnancy because we had decided never to have children. 1=planned; 2,3, and 4 = unplanned
Miller, 1986, 1994	The Pyschology of Reproduction study, begun in 1972. Included 967 white women living in the San Francisco Bay area. Followed up women for three years.	Planned/intended	Of a current pregnancy, women were asked: "Were you trying to get pregnant when you did?
Chow et al, 1987	1020 women aged 20-39 attending FP services in Maryland	Planned and unplanned	Not stated.
Warren and Johnson, 1989	175 pregnant unmarried women, aged 14-22, continuing their pregnancies	Unplanned	Not stated.

Pregnancy status questions in sub-national U.S. studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Clinton and Kelber, 1993	69 fathers of six week old newborns	Planned and unplanned	"Was your partner's pregnancy a planned event or was it a surprise to you?" Answer choices: planned and unplanned.
Cohan and Dunkel-Schetter, 1993	98 women attending for pregnancy testing at a private women's health clinic in Califonia	unintended	"Prior to testing, the majority of women indicated that their pregnancies were unintended."
O'Campo et al, 1993	567 women attending antenatal clinic at John Hopkins Hospital	Planned and unplanned	Not stated.
Rosenfeld and Everett, 1996	110 women attending an antenatal clinic, Tennessee	Planned and unplanned	"Each woman was asked 'did you plan this pregnancy?'"
Bitto et al, 1997	740 women attending natural family planning centres in Washington DC, Chile, Italy, Colombia	Planned and unplanned	"The definition of a planned pregnancy was that the woman stated that her intention had been to become pregnant and the chart showed that intercourse had taken place during her fertile period. The definition of an unplanned pregnancy was that the woman said that she and her partner had not wanted a pregnancy and were using natural family planning for contraception."
Davidson et al, 1997	491 women on injectable contraception, from FP services in New York, Pittsburgh, and Dallas	Intended and unintended	"Pregnancies that occurred within nine months of discontinuation in women not wanting to become pregnant at time of discontinuation were defined as unintended."

Pregnancy status questions in sub-national U.S. studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Mayer, 1997	725 women attending antenatal clinics in Texas	Intended and unintended	"Unintended childbearing was dichotomous, contrasting those who reported 'trying to get pregnant' versus those 'not trying' or those who 'did not want to get pregnant'."
Sable et al, 1997	2828 women in the Missouri Maternal and Infant Health Survey	NSFG categories of intended, mistimed and unwanted, plus additional categories of "unhappy", "unsure" and "denial" to measure unwantedness during pregnancy.	Intended, mistimed, and unwanted defined by NSFG questions. Additional measures of unwanted created by addition questions, new categories created according to the following: "Unhappy": women who reported that they were somewhat unhappy or very unhappy about being pregnant during the pregnancy. "Unsure": describes women who were unsure whether they wanted to be pregnant "Denial": women grouped women who, when asked about having experienced difficulties in obtaining prenatal care, said that early in the pregnancy they had not wanted to think about being pregnant, had not wanted others to know about the pregnancy, or had not known they were pregnant.
Williams et al, 1997	95 women attending FP services in Houston, Texas	Planned and unintended	"Respondents were divided into two groups, those who had experienced unintended pregnancy and those who had not."
Hellerstedt et al, 1998	7174 women, under 20 weeks gestation, continuing their pregnancy, Washington State and Minnesota	Intended, mistimed, unwanted	"Thinking back to just before your pregnancy, how did you feel about becoming pregnant? Would you say you wanted to be pregnant sooner than you were, wanted to be pregnant at this time, wanted to be pregnant but at a later time, or did you not want to be pregnant now or in the future?"

Pregnancy status questions in sub-national U.S. studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Leathers and Kelley, 2000	124 women attending antenatal clinics in Chicago	Intended and unintended	Modified NSFG categories: 1) wanting the pregnancy at that time; 2) not wanting the pregnancy at that time, but wanting a pregnancy in the future; 3) not wanting the pregnancy at that time and being undecided about the future; and 4) wanting never to have a pregnancy.
Orr et al, 2000	922 Black women attending five antenatal clinics in Baltimore City	Intended, mistimed, unwanted	"Thinking about this current pregnancy, how do you feel about being pregnant? (check one): I wanted to be pregnant sooner = intended I wanted to be pregnant now = intended I wanted to be pregnant later = mistimed/unintended I did not want to be pregnant now or at any time in the future = unwanted/unintended I am unsure how I feel = unintended
Petersen et al, 2001	279 women aged 13 to 45 enrolled in a Medicaid managed care health plan in Memphis, Tennessee.	Intended, (mistimed), unintended	"Thinking back to just before you were pregnant (currently or the most recent time), how did you feel about becoming pregnant?" Intended = "I wanted to become pregnant" OR "I wanted to be pregnant sooner" Unintended = "I wanted to be pregnant later" OR "I did not want to be pregnant then or at any time in the future"

use in the United States: 1982-1995, *Family Planning Perspectives*, 1998, 30(1):4–10 & 46; and Toulemon L and Leridon H, Contraceptive practices and trends in France, *Family Planning Perspectives*, 1998, 30(3):114–120.

4. Bélanger A, 1998, op. cit. (see reference 2).

5. Dumas J and Bélanger A, 1998, op. cit. (see reference 2).

6. Boroditsky R, Fisher W and Sand M, The Canadian Contraceptive Study: a comprehensive survey of Canadian women's contraceptive attitudes and practices, *Canadian Journal of Human Sexuality*, 1999, 8(3):163–216.

7. Balakrishnan TR et al., 1985, op. cit. (see reference 1).

8. Piccinino LJ and Mosher WD, 1998, op. cit. (see reference 3).

9. United Nations (UN) Population Division, *Levels and Trends of Contraceptive Use as Assessed in 1994*, New York: UN, 1996, p. 140.

10. Balakrishnan TR et al., 1993, op. cit. (see reference 1).

11. Forste R, Tanfer K and Tedrow L, Sterilization among currently married men in the United States, 1991, *Family Planning Perspectives*, 1995, 27(3):100–107 & 122.

12. Wu Z, *Cohabitation: An Alternative Form of Family Living*, Don Mills, Ontario: Oxford University Press, 2000.

Understanding Pregnancy Intentions: A Problem In Evidence Everywhere

We read with interest a recent article by James Trussell and colleagues on contraceptive failures and unintended pregnancies [Are all contraceptive failures unintended pregnancies? evidence from the 1995 National Survey of Family Growth, 1999, 31(5):246–247 & 260] and the accompanying commentaries [31(5):248–253]. In Britain, too, we are grappling with the methodological challenges involved in measuring pregnancy intentions.

Earlier measures of pregnancy intentions developed by a number of researchers[1] tapped intentions, contraceptive use, reactions to pregnancy and plans for the timing of pregnancy. As was the case in the United States, these were included in large surveys aimed at assessing fertility, family formation and contraceptive use, and the questions were asked initially of married, and later of single, women, and usually about live births.

Inconsistency has also characterized most British attempts at measuring this concept. In one survey, of the 29% of women who reported having used a method of birth control around the time of conception, nearly a third were pleased to find themselves pregnant.[2] And in 1976, 61% of mothers reported intending to get pregnant and being pleased to be pregnant and just 14% reported using birth control and being sorry the pregnancy happened, yet one in four reported reactions that were inconsistent with their actions.[3]

Since the earliest measures were developed, the situation has become more rather than less complex. At the time the questions were developed, sexual activity and birth more commonly occurred within marriage. The expectation that unplanned, unintended and unwanted births would decrease as women were provided with the tools with which to plan their pregnancy was reasonable. Only with current knowledge can we see that intentions, planning and decision-making around pregnancy (and hence measurement of pregnancy status) is likely to be more complicated—a situation surmised with some prescience more than a decade ago.[4]

Contraception is free to all through the National Health Service in Britain, regardless of age or socioeconomic status. Universal access to reliable contraception may have increased expectations of control over pregnancy for some. At the same time, however, contraceptive nonuse remains a feature of British sexual life for some women and couples.[5] Also, with a growing proportion of single, sexually active young women, more rather than less ambivalence is likely to surround attitudes toward pregnancy. The need for measures that tap affective states is now greater.

Since 1998, we have been carrying out research with the aim of producing a measure that is valid, reliable and acceptable in the context of demographic trends and social mores. In-depth interviews have been carried out with pregnant women, probing the circumstances of their pregnancies. From these data, we aim to develop a theoretical model of pregnancy status that will inform the construction of a quantitative measure, which we will then pilot-test and evaluate psychometrically. In collaboration with the Office for National Statistics, we hope to produce population estimates of unintended pregnancy in population subgroups and assess how the measure can be used in routine National Health Service statistics. In the meantime, we watch with interest progress toward improving the measurement of the concept of intention.

Geraldine Barrett
Kaye Wellings
Sexual Health Programme
Health Promotion Research Unit
Department of Public Health and Policy
London School of Hygiene and Tropical Medicine
London, UK

References

1. Cartwright A, *Parents and Family Planning Services*, London: Routledge Kegan Paul, 1970; Cartwright A, *How Many Children?* London: Routledge Kegan Paul, 1976; Cartwright A, Unintended pregnancies that lead to babies, *Social Science and Medicine*, 1988, 27(3):249–254; Fleiss sig A, Unintended pregnancies and the use of contraception: changes from 1984 to 1989, *British Medical Journal*, 1991, 302(6769):147; Bone M, *Family Planning Services in England and Wales*, London: Her Majesty's Stationer's Office (HMSO), 1973; Bone M, *The Family Planning Services: Changes and Effects*, London: Department of Health and Social Security, 1978; and Dunnell K, *Family Formation 1976*, London: HMSO, 1979.

2. Cartwright A, 1970, op. cit. (see reference 1), p. 11.

3. Cartwright A, 1976, op. cit. (see reference 1), p. 21.

4. Cartwright A, 1988, op. cit. (see reference 1).

5. Murty J and Firth S, Use of contraception by women seeking termination of pregnancy, *British Journal of Family Planning*, 1996, 22(1):6–8; Price SJ et al., Use of contraception in women who present for termination of pregnancy in inner London, *Public Health*, 1997, 111(6):377–382; and Holland J et al., *The Male in the Head: Young People, Heterosexuality and Power*, London: Tufnell Press, 1998.

APPENDIX 3

Pregnancy status questions in sub-national British studies

Study	Sample/Fieldwork	Pregnancy status categories	How pregnancy status was assessed
Ineichen, 1986	102 teenage antenatal clinic attenders, SW England	Planned, ambivalent, unplanned-pleased, unplanned-upset	"It is clear that a division into planned and unplanned pregnancies is gross over-simplification." Pregnancies divided into four categories, but how these categories were assigned is not stated.
Lester and Farrow, 1988	230 antenatal clinic attenders at two hospitals in South Wales	Planned, ambivalent, unplanned	"Women were asked whether they had intended to be pregnant at this time."
Metson, 1988	518 women reporting pregnancy at a large group GP practice, Bracknell	Planned and unplanned	"Each pregnant woman was asked by the doctor she was consulting whether she had intended to become pregnant."
While, 1990	979 infants aged two who were under the care of a health visitor practice in three London districts	Planned and unplanned, welcomed and unwanted	Survey of health visitor records. "The records were examined..."
Everett, 1991	312 women in early pregnancy presenting at to a GP in Alton	Planned and unplanned	Not stated.
Lo et al, 1994	269 teenagers recruited from antenatal or termination of pregnancy services, in two hospital in South Wales	Intended and unintended	"The questions on intention ... were modified from those used by Cartwright (1988)".
Smith and McElnay, 1994	1312 women aged 16 to 49	Planned and Unplanned	"The survey ... examined women's experience of unplanned pregnancy"

Pregnancy status questions in sub-national British studies

Study	Sample/Fieldwork	Pregnancy status categories	How pregnancy status was assessed
Gilchrist et al, 1995	Longitudinal study of women 6410 women undergoing a TOP, and 1351 women with 'unplanned' continuing pregnancies	Unplanned	"G.P.s ... were asked to recruit all women who requested a TOP, and a comparison group of women who did not request a termination but whose pregnancy was 'unplanned' (defined as an unintended pregnancy or one in which the woman could not state, to within three months, the duration of her attempts to conceive)."
Woodward, 1995	30 teenagers attending an antenatal clinic, Cambridge	Unintentionally pregnant	"Unintentionally pregnant teenagers were recruited ... from an antenatal clinic. "
Bodard and Baldwin, 1996	577 women attending the Avon Pregnancy Advisory Service for pregnancy testing or abortion counselling	unplanned	"Women attending the APAS who had a confirmed unplanned pregnancy between January and March 1994 were asked to joint the study"
Lyons, 1996	748 women, population sample of Brighton H.A. area.	Planned and unplanned	Not stated.
Warner et al, 1996	2375 recently-delivered women, from two British maternity units	Planned and unplanned	Not stated.
McGovern et al, 1997	515 postpartum women who had delivered normal babies in three Glasgow maternity hospitals	Planned and unplanned	"Information was collected on ... whether the pregnancy was planned."

Pregnancy status questions in sub-national British studies

Study	Sample/Fieldwork	Pregnancy status categories	How pregnancy status was assessed
Allen and Bourke Dowling, 1998	84 women who had had a baby in 1995 when aged 16-19, from three areas: Hackney, Leeds and Solihull	Planned and unplanned	Not stated.
Harris and Campbell, 1999	88 primiparous women who were continuing their pregnancy, recruited from a general practice and antenatal clinic in London.	Planned and unplanned	"Distinguishing whether a woman had had a planned or an unplanned pregnancy was easily done in most cases: participants were simply asked if they had decided or planned to get pregnant. ... Most women fell easily into these clear-cut categories. There were, however, a few cases where the 'plannedness' of the pregnancy was very difficult to decide. ... Where there were cases of ambiguity, women were asked a further question: "If you had been warned the night you got pregnant, that you would conceive, would you have gone ahead with making love?". A positive answer put women in the planned group.
Sen et al, 2001	300 women attending the antenatal clinic of Queen's Hospital, Burton on Trent	Planned and unplanned	Not stated.

APPENDIX 4

Pregnancy status questions in other sub-national (non-UK and US) studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Blignault and Brown, 1979	100 women attending two antenatal clinics in Sydney, Australia	Unintended	"Fifty-three said they had not intended to become pregnant on this occasion, and 74 had, at some time in their life, had an unintended pregnancy.
Fergusson and Horwood, 1983	Cohort of 1265 children born in Christchurch, New Zealand	Planned and unplanned	"A planned pregnancy was defined as 'a pregnancy in which both partners were not using contraception at the time of conception in the hope or expectation of conceiving a child'. Any pregnancy which failed to satisfy these criteria was defined as unplanned."
Laizner and Jeans, 1990	27 women attending an antenatal clinic in Canada	planned and unplanned, desired and undesired	Not stated.

Pregnancy status questions in other sub-national (non-UK and US) studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Najman et al, 1991	8556 attending antenatal clinics in Brisbane, Australia	wanted and unwanted	Categories derived from following questions: How well do the following statements describe how you felt when you found out you were pregnant (options SA=1 to SD=5): I felt overjoyed; I would have preferred not to become pregnant; I felt unhappy; felt it was the worst thing that could have happened to me. Also, circle one of the following (options No=1, Unsure=2, Yes=3): I planned to get pregnant at this time; I meant to avoid pregnancy; I wanted to get pregnant at this time; My method of family planning failed. "Scores were scaled such that two variables were created. The first variable involved adding all the responses and distinguishing those women who responded consistently in positive terms to the negative items. A similar approach was adopted to the second four items and those whose negative feelings and reports were consistent across both scales were categorised as having an unwanted pregnancy."
Webb and Holman, 1992	1511 women aged 16 to 44, married or cohabiting, in Perth, Australia	Planned and unplanned	Not stated.

Pregnancy status questions in other sub-national (non-UK and US) studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Roe and Drivas, 1993	54 Greek and 53 U.S. infants from Athens and California	Planned and unplanned	"The mothers were engaged in conversation regarding the conditions of her pregnancy, including such topics as marital status, length and stability of her relationship with the baby's father, how long she had been trying to get pregnant, and her initial response to the pregnancy. In this apparently casual manner, it was ascertained whether or not a baby's conception had been planned."
Denton and Scott, 1994	200 new mothers at maternity hospital in Novia Scotia, Canada	intended and unintended (unintended also divided into: unintended-wanted and unintended-unwanted)	"A pregnancy was classified as intended if prior to conception contraception had been discontinued or had not been used at all because the mother had wanted to become pregnant. All pregnancies occurring in women indicating that they had not planned on, or had not wanted to become pregnant around the time of conception were classified as unintended. Whether an unintended pregnancy was wanted or unwanted was determined by asking the mother if, at the time the pregnancy was confirmed, she felt that she would have liked to have prevented the pregnancy from having occurred: an unintended pregnancy was classified as unintended-wanted if the response was 'no', or, as unintended-unwanted if the response was 'yes'.
Delgado-Rodriguez et al, 1997	409 women delivering at hospital, Santander, Spain	Planned and unplanned	"Women were asked whether they had or had not planned their pregnancy."

Pregnancy status questions in other sub-national (non-UK and US) studies

Study	Sample/Fieldwork	Pregnancy status categories	Assessment of pregnancy status
Lane et al, 1997	308 women delivering at a Dublin maternity hospital, Ireland	Planned and unplanned	Not stated.
McDonnell et al, 1999	299 women attending the3 antenatal clinics in Dublin, Ireland	Planned and unplanned	Not stated.
Curtis et al, 1999	1898 couples from farms participating in the Ontario Farm Family Health Study, Canada	Planned and unplanned	"We defined planned pregnancies as pregnancies for which the woman reported: 1) not having used any form of birth control when she became pregnant, 2) the method of birth control that the couple had discontinued to try to conceive, and 3) the number of months or cycles it took to conceive.
Jensen et al, 1999, 2000	28629 women attending for antenatal care at Odense University Hospital, Denmark, 1972-87	Planned	Not stated exactly. Information includes: "One of the preprinted questions was the following: 'From the time you wanted a pregnancy until it occurred how much time passed?'. Pregnancies reported as a result of contraceptive failure were excluded"
Kaharuza et al, 2001	2904 multiparous women with a birth interval of37 months or less	Planned and unplanned	Not stated.
Kero et al, 2001	221 women attending a Swedish hospital for abortion	"more or less planned", unplanned	Was the pregnancy planned? Responses: "more or less planned", or "no".
O'Leary et al, 2001	288 women attending 3 Dublin antenatal clinics for the first time	planned and unplanned	Not stated.

[LETTER FROM CONSULTANT]

[LETTERHEAD ACCORDING TO PLACE OF RECRUITMENT]

Date

Dear madam,

RE: 'Attitudes to pregnancy' study

A study about attitudes to pregnancy is being carried out at the moment by researchers from the London School of Hygiene and Tropical Medicine. We are involved in the study too, and are therefore asking women from [name of clinic/antenatal service etc] if they would be interested in taking part.

Taking part in the study would mean being interviewed by a researcher. More details of what the study involves and the sorts of questions the interviewer would ask are given in the enclosed information sheet. Please read this carefully.

If you have any questions about the study, the information sheet gives you a telephone number **(Freephone 0800 3892660)** you can ring for more information. If you would like to speak to someone here about the study you can contact [names of clinic contacts] when you are here, or ring them on:

[name] [tel]
[name] [tel]

If you would like to take part in the research, please fill in the enclosed consent form and seal it in the pre-paid envelope. You can hand the envelope in at [reception desk/to nurse etc, according to local arrangements] or post it direct to the study team. This form allows the researcher to contact you.

I have written to several women at [name of clinic] about this so please do not feel that you have to participate in the study. Your care will not be affected in any way by your decision to take part, or not take part.

Your sincerely,

Consultant etc

[INFORMATION SHEET]

[LSHTM HEADED PAPER]

'ATTITUDES TO PREGNANCY' STUDY

INFORMATION

You are probably aware that figures for birth rates, marriage and divorce, abortion rates, single parents and such like are collected nationally each year and used by the government to design and monitor health and social services. Often these figures are not a true reflection of an individual's situation and this is particularly true of those in relation to intended or unintended pregnancy.

Currently, we are carrying out a study looking at women's attitudes to pregnancy. The study will run for three years, and we eventually aim to focus on unintended pregnancies, developing a measure (i.e. a short questionnaire) which can accurately assess unintended pregnancy. This measure will then be used nationally to provide information about the numbers of unintended pregnancies in Britain and the circumstances in which they occur.

At the moment, however, we are in the early stage of the study. Before we can begin to develop a measure, we need to find out more about women's experiences leading up to a pregnancy and the factors which influence women's decisions about the pregnancy. The sorts of questions we are interested in are: what are women's attitudes and feelings to pregnancy and motherhood?; what do women know about contraception and sexual health?; do women use any form contraception, and if so, in what circumstances?; what types of sexual relationship are women in (e.g. steady, casual, occasional etc)? what type of support do women get from their families?

To answer the above questions and find out more about women's experiences, we need to talk to women who have recently become pregnant. As someone who is attending *[name of antenatal clinic, abortion counselling service etc]* , you may be able to help us by participating in our study.

What does taking part in the study involve?

Taking part in the study would involve being interviewed by a female researcher. This would take approximately an hour to an hour and a half of your time, and would be tape recorded. (The tape recorder is simply so the researcher does not have to spend time writing notes during the interview.) The researcher is happy to come to your home or can meet you somewhere else, if you prefer. The interview will be very informal, discussing a variety of topics relating to your pregnancy. Everything you tell the researcher will be **strictly**

confidential. The information from this study will only be presented in anonymous form (i.e. no names or identifying details attached).

Please note, however, that these are **research** interviews. Although you would be talking about your feelings and thoughts about your pregnancy, the interviews are being carried out by trained researchers, not trained counsellors.

[For women who are continuing with their pregnancy:] We would also like to interview women again later in their pregnancy, and after the birth of their baby. At the end of your first interview you will be asked if you would consider being interviewed again. You can make up your mind then or later about the additional interviews.

What do I do if I am interested in taking part?

If you would like to find out more about the research before deciding whether you'd like to take part, please telephone **Geraldine Barrett on (Freephone 0800 3892660)** who will be happy to help you with any questions you may have.

If you are interested in taking part in the study, please fill in the attached form (and send it back in the prepaid envelope). This form asks you for a few details and allows us to include you in the study. However, even though you have signed and returned the form, remember you are free to change your mind at any time.

If you know now that you do not wish to take part in the study, please fill in section A of the attached form, filling in your name and ticking the box which says you do not wish to take part in the study. Once you have ticked this box we will not contact you again.

Thank you for your help.

CONSENT FORM

'ATTITUDES TO PREGNANCY' STUDY

Investigators: Geraldine Barrett, Kaye Wellings

SECTION A

Name: _____ *(please PRINT)*

Please tick:

☐ I am interested in taking part in the study ***(go to section B)***

or

☐ I do NOT wish to take part in the study *(please return in pre-paid envelope)*

SECTION B

Please fill in the following details if you are interested in taking part in the study:

Address: _____

_____

_____

Telephone: _____

Age: _____

Where would you prefer to be interviewed?

☐ at home ☐ elsewhere *(please tick)*

Would you like us to tell your GP that you are taking part in our study?

☐ yes ☐ no

Is it ok for us to contact you at your home address and telephone number?

☐ yes

☐ no (I only wish to be contacted at the clinic/hospital)

Please read the following and then sign your name:

1) I have read the information sheet concerning this study and I understand that the interview will be about my experiences surrounding this pregnancy.

2) I understand that the interview will be arranged for a time and place which is convenient to me.

3) I understand that all information I give will be STRICTLY CONFIDENTIAL.

4) I understand that results from the study will only be presented in anonymous form.

5) I understand that I may change my mind and decide not to be interviewed, if I so wish.

Signature: _____ *(please sign)*

Date: _____

Please return in the pre-paid envelope

ATTITUDES TO PREGNANCY STUDY
TOPIC GUIDE

Introduce study
Assure interviewee about confidentiality

Background information

Could you tell me a little bit about yourself?

Age

Born in Britain?

Living arrangements
-who with?

Education
-age left school?

Relationship status
-any current partner

Marital status
-married/single
-cohabiting
-married before

Children/family

Employment
-employed/unemployed/student etc

Current situation - pregnancy/recruitment

Confirm current situation as understood, re: pregnancy

Attending ? *(GP, family planning clinic, termination of pregnancy service, antenatal clinic)*
for pregnancy test, possibility of pregnancy, TOP, antenatal service
or had TOP - when?

How many weeks pregnant? *(if known, or estimate)*
(If already had TOP, ask how many weeks pregnant when had TOP)

Earliest awareness of pregnancy

When did you first think you were/might be pregnant?

What made you think you were/might be pregnant?

Pregnancy symptoms
e.g. missed period
e.g. morning sickness
e.g. breast tenderness
e.g.other pregnancy symptoms

Aware of conceptive problem (or no contraception) around time of conception?

Contraception around the time of pregnancy

Were you using any contraception around the time you got pregnant?

Using contraception around time of conception	*Not using contraception around time of conception*
using what method?(see below)	*probe - find out why? circumstances?*
how using the method?	*wanted to get pregnant?*
knowledge and use of method	*distrust/dislike method*
	fear of side effects?
	last method used? how long? why stopped?
	if actively planning pregnancy, check what 'planning' involved.
	planned with partner?

Perception of risk of pregnancy?
How much conscious decision-making?
Alcohol/drugs involved?
Partner attitudes/involvement with contraception?

(Methods questions:
(pills: missed/late pills? taking other tablets? side effects? how long used?)
(Condoms: always used? put on in time? split/come off? oral sex with condoms? lubricants?)
(Diaphragm? who fitted? spermicide? comfortable with method? how long used?)
(IUCD? who fitted? how long used?)
(Emergency contraception used with this pregnancy?)

Confirming pregnany

How did you find out for sure that you were pregnant?
pregnancy test(s) - when/where?

What were your first thoughts when you found out you were pregnant?
thoughts changed?
thoughts stayed the same?
how changed?
how stayed the same?

What did you do when you found out you were pregnant?
any thoughts turned into action?
which thoughts? why?

Who did you tell when you found out you were pregnant?
who first? - partner, family, friend, health professional
why? - which people first, any why

Feelings about being pregnant

What does you pregnancy feel like to you right now?
Obtain spontaneous reaction

Probe feelings: pleasure, regret, indifference, etc

Probe the extent to which conception is seen on a continuum from real live person, their child, to bundle of cells

(If appropriate) Why do you think you got pregnant just at that time?
Descriptions relating to intentions/plans/desires might come out here. Is so, probe what words they would attach to them

Decision about pregnancy

How did you come to your decision about terminating/continuing your pregnancy?
OR
You have the options of continuing your pregnancy, or opting for a termination: how do you think you will decide what to do?

- *involvement of partner? family? friends? in decision-making*
- *own attitudes?*
- *role of medical services?*
- *how did/does woman envisage potential outcomes (pregnancy/termination)?*

For women who are undergoing a termination of pregnancy:
What was the process of obtaining a TOP?
Woman's feelings about the TOP?
Partner's feelings about TOP?
Any changes to contraceptive use/attitudes to pregnancy a result of TOP?

Orientation to motherhood

Do you have any children? *(if not already known)*

What are you feelings about having children?
feelings generally towards having children?
having a(nother) child now?
having children in the future?
have feelings changed over time?
value of motherhood?
any previous pregnancies/TOPs? (check circumstances)

Descriptions relating to intentions/plans/desires might come out here. If so, probe what words they would attach to them

Timing of childbearing

When do you think is the ideal time for having children?

ideal time for woman?
ideal time for others, in general?
how does this pregnancy fit - right time? wrong time? too early? too late?
right/not right with this partner?

Descriptions relating to intentions/plans/desires might come out here. If so, probe what words they would attach to them

Partner

Check relationship status (if not already known)

About your partner .....

-his reaction to pregnancy
-his feelings about the pregnancy
-his role in making a decision about the pregnancy? discussed?
-his feelings about the outcome (continuing pregnancy or termination)
-extent of harmony, unanimity
-his feelings about fatherhood? (before and now?)

Planned/Intended/Wanted

A number of words have been used in the past to describe pregnancies, and I'm going to go through these words. Could you tell me what the words mean to you, and if they fit with your pregnancy?

Intended	Planned	Wanted
Unintended	Unplanned	Unwanted

ATTITUDES TO PREGNANCY STUDY
(follow up interviews)

TOPIC GUIDE

Explain why doing interview/study
Assure interviewee about confidentiality

Rest of pregnancy

What was the rest of pregnancy like (after last interview)?
Any significant events
Own feelings (and partner's feelings) during rest of pregnancy
Any changes in feelings during pregnancy

When baby was born (*Check date of birth and gestational age)*

Delivery

Tell me about the delivery.
get broad outline
partner involved?
worst bit /best bit

Early postnatal period

What was first week or so after the baby was born like?
check partner involvement / other help
feelings during this time

Check breastfeeding

Rest of postnatal period

What has it been like since then?
Feelings about new baby / status as mother / change in life etc
Any plans re: work
Partner's involvement/feelings

Future children

Have you any plans for more children?
Spacing? Timing?
Contraception in interim?

Any ideas of planning/intending emerging? Strength of feeling for or against?

Hindsight

(Ask woman to think back to when she first found she was pregnant and/or decided to get pregnant:)

If you could go back to that time, knowing what you know now, do you think you would do things the same?

Probe feelings about planning/intentions or lack of planning/intentions

Is there anything about this pregnancy/birth which would influence what you do next time/in future?

Planned/Intended/Wanted

A number of words have been used in the past to describe pregnancies, and I'm going to go through these words. Could you tell me what the words mean to you?,

Intended	Planned	Wanted
Unintended	Unplanned	Unwanted

Would you use any of the above terms to describe your pregnancy?

Coding Sheet
Stage 1 interviews

1.0 Where interviews took place

2.0 Pregnancy situation
- continuing pregnancy or TOP, gestation, whether interviewed after abortion, what type of abortion

3.0 Demographic/background
3.1 Age
3.2 Martial status/relationship status
3.3 Any children?
3.4 Living arrangements
3.5 Where born/lived
3.6 Education
3.7 Employment: past and present
3.8 Family background

4.0 Early pregnancy
4.1 First suspicion of pregnancy
4.2 Pregnancy testing
4.3 Symptoms of pregnancy experienced
4.4 Immediate reaction to positive pregnancy test
4.5 Longer term feelings about pregnancy
4.6 Who told/discussed positive pregnancy test/early pregnancy with (including reactions of other people to pregnancy)
4.7 Experience of scans
4.8 Woman told that she "looked pregnant" early in pregnancy

5.0 Contraception around time of conception
5.1 Contraceptive situation around time of conception
5.2 Expressed intentions/plans about conception (e.g. conscious decision making, trying to become pregnant, not wanting to become pregnant, ambivalent, etc)
5.2b Decisions about family building leading to this pregnancy (e.g. size, spacing, timing)
5.3 Perceptions of pregnancy risk-taking (in those not trying to become pregnant)
5.4 Activities of those actively trying to become pregnant
5.5 Use of emergency contraception
5.6 Fate

6.0 Contraception in the past

6.1 Previous methods of contraception used
6.2 Anti-pill feelings / or bad experiences with pill / preferences against the pill
6.3 Dislike of other methods of contraception

7.0 Feelings/thoughts about what pregnancy is

7.1 How do they see the pregnancy (baby/child/cells, etc)
7.2 Issue of the baby's sex - preferences, want to know in advance?
7.3 Feelings (longer term) about pregnancy, physical and emotional

8.0 Decision about pregnancy

8.1 Continuing/terminating - an issue?
8.2 How decision about abortion was reached? (feelings/issues)
8.3 Who was the decision to abort (or not abort) discussed with?
8.4 Positiveness of decision to abort (right thing, regret, etc)
8.5 General attitude (or previous attitude) to abortion - if expressed
8.6 Experiences of TOP services
8.7 Feelings after abortion

9.0 Feelings about motherhood

9.1 Previous pregnancies/TOPs
9.2 Feelings about motherhood generally (past, now, changed, etc)
9.3 Feelings about having children in future?
9.4 Circumstances of previous pregnancies
9.5 Pressure - feeling pressure about having children (parental, peer, societal), and censure about having too many/too few/too early/too late

10.0 Timing of childbearing

10.1 When is the ideal time/circumstances for having children?
10.2 Foresee childbearing with this partner?
10.3 How does this pregnancy fit with ideal circumstances

11.0 Partner

11.1 Partner - socio-demographic details, where lives, does what?
11.2 Partner's reaction to positive pregnancy test
11.3 Partner's role in decisions about pregnancy (to conceive, abort/continue)
11.4 Partner's feelings about outcome (continuing/TOP)
11.5 Partner's feelings about fatherhood generally

12.0 Concepts *prior* to question

Any use of concepts or words of planning, intentions, etc, PRIOR to being asked the question about definitions

12.1 Use of any actual terms, e.g. planned, unplanned, not planned, etc.
12.3 Use of terms "accident", "mistake" etc
12.4 Previous decision/discussion of what she/they would do in even of an unplanned pregnancy occurring.
12.5 Previous decision/discussion about long term intentions/plans about pregnancy within this relationship.
12.6 Anti-planning views

13.0 Direct question about definitions of planned, unplanned, etc

13.1 Planned definition
13.2 Unplanned definition
13.3 Intended definition
13.4 Unintended definition
13.5 Wanted definition
13.6 Unwanted definition
13.7 Other comments/information about above terms
13.8 Terms applied to this pregnancy
13.9 Rejection of concept of planning a pregnancy

14.0 After birth or TOP

14.1 Plans regarding work/study
14.2 Plans regarding living/relationship arrangement
14.3 Plans for future contraception
14.4 Ideas/plans about what they would do in event of a future unplanned pregnancy

Extract from charting sheet

	Termination considered?	How decision about aborting or continuing was reached (only women considering the issue)	Who told about abortion/preceding pregnancy (TOP only)	Positiveness of decision to abort (TOP only)	Experience of TOP/services (TOP only)
RK109	Yes - for a few weeks	If had been younger would instantly decided to keep baby - but now more accustomed to lifestyle p.4. She and partner talked about pros and cons on holiday p.4,6. Considerations - or child, money, freedom p.6.	N/A	N/A	N/A
RK110	Yes - instantly thought that she didn't want to continue pregnancy p.5,13	Considerations: her father's opinion p.5,18, about to go to university p.7, would have to marry if continued pregnancy p.8, too young for big commitment p.8, upset to family p.8. Made decision without boyfriend p.17	Boyfriend and four female friends p.9	N/A	Nothing in particular
KW101	Yes - only very briefly	Thought about TOP but it became very clear to her that she didn't want to do that p.12, p.16. Partner wouldn't have wanted her to have TOP p.13.	N/A	N/A	N/A
KW102	No	N/A	N/A	N/A	N/A
KW103	Yes - but not clear cut	Considerations: not ready to be mother p.8 (+p.19), circumstances not right, single mother, finance (+p.18), emotional p.9, partner distant p.15. Emotional - for continuing, rational - for TOP p.16. Wrote list of pros and cons p.17.	Told partner, his mother p12	Emotionally, not clear cut p.14, p.15. But reality felt only thing she could do p.16. Part relieved, part sad p.17. Not 100% sure p.17	Would have liked counselling

What is a 'planned' pregnancy? Empirical data from a British study

Forthcoming in Social Science and Medicine
Ref MB/2001/1476
Accepted for publication July 2001

Geraldine Barrett BA MSc*
London School of Hygiene and Tropical Medicine, University of London

Kaye Wellings BA MA MSc
London School of Hygiene and Tropical Medicine, University of London

Health Promotion Research Unit,
London School of Hygiene and Tropical Medicine,
Keppel Street,
London WC1E 7HT
Tel. 020 7927 2268
Fax. 020 580 6507

Abstract

The terms "planned", "unplanned", "intended", "unintended", "wanted" and "unwanted" are often used in relation to pregnancy in health policy, health services and health research. This paper describes the findings relating to women's understanding of these terms from the qualitative stage of a British study. We found that when discussing the circumstances of their pregnancies, women tended not to use the above terms spontaneously. When asked to explain the terms, women were able to do so but there was considerable variation in understanding. Most, but not all, were able to apply the terms. Women applied the term "planned" only if they had met four key criteria. Intending to become pregnant and stopping contraception were not sufficient criteria, in themselves, to apply the term; partner agreement and reaching the right time in terms of lifestyle/life stage were also necessary. In contrast, "unplanned" was a widely applied term and covered a variety of circumstances of pregnancy. The other terms were less favoured, "unwanted" being positively disliked. We recommend that survey questions eliciting information on women's circumstances of pregnancy do not rely on the above terms in isolation and, further, that a more circumspect use of the terms in policy and clinical settings is required.

Key words:

pregnancy planned unplanned unintended unwanted qualitative

Introduction

The desirability of 'planned' pregnancies has been an accepted tenet of family planning and maternal and child health policy in Britain and elsewhere in the world (RCOG, 1991; Department of Health, 1992; UNICEF, 1993; Brown and Eisenberg, 1995; Lee and Stewart, 1995). The assumption of such policy is that there are a number of costs to the individual and society from unplanned pregnancies. Unplanned pregnancies which result in abortion carry a financial cost to the health care system and/or the woman herself, as well as a potential personal/emotional cost and physical risk (albeit small with legal abortion) to the woman. Further, women who have unplanned pregnancies which continue to term have fewer opportunities to benefit from pre-conceptual and early antenatal care (e.g. taking folic acid, giving up smoking), and unplanned pregnancies have been linked to poor infant outcomes (Fergusson and Horwood, 1983; Baydar, 1995). Hence the importance of good population estimates of the prevalence of unplanned pregnancy and the numerous attempts to gather such information in the 40 years since reliable contraception made pregnancy planning a realistic concept (Freedman, Whelpton & Campbell, 1959; Cartwright, 1970, 1976, 1988; Ryder and Westoff, 1971; Bone, 1973, 1978; Westoff and Ryder, 1977; Dunnell, 1979; Cleland and Scott, 1987; Fleissig, 1991, Macro International, 1994).

In much research literature, the terms "planned", "unplanned", "intended", "unintended", "wanted", "unwanted" and the concepts of "planning" or "intending" are treated as self-evident and unproblematic (e.g. Chow, Rider & Hou, 1987; Metson, 1988; O'Campo, Fadden, Gielen, Kass & Anderson, 1993; Smith and McElnay, 1994; Warner, Appleby, Whitton & Faragher, 1996; Mayer, 1997; McGovern, Moss, Grewal, Taylor, Bjornsson & Pell, 1997). The approach taken in large national surveys (cited above) has been less crude; planning or intention status has tended to be elicited by means of multi-dimensional questions probing not only intentions, but also contraceptive use, reactions to pregnancy, timing of pregnancy plans and family size intentions. However, these questions have been used in various combinations and in different forms, suggesting a lack of clarity about this concept. Most of the questions have been concerned with the circumstances of births rather than abortions, the assumption being that all abortions are unplanned/unintended, despite evidence to the contrary (Price, Barrett, Smith & Paterson, 1997). Further, most of the questions were developed for use with married women and measures are now urgently needed which take account of rapidly changing demographic trends - the increasing proportion of birth outside marriage and more fluid patterns of family formation. In the United States particularly, there has been growing concern over the validity of the survey questions used (London, Peterson & Piccinino, 1995; Kaufman, Morris & Spitz, 1997; Bachrach and Newcomer, 1999; Luker, 1999; Peterson and Mosher, 1999; Sable, 1999; Trussell, Vaughan & Stanford, 1999).

Research on how women themselves understand terms such as "planned", "unplanned", "intended", "unintended", and "wanted", "unwanted" is limited. One U.S. study, carried out in 1996 with 18 pregnant women using depth interviews, provided information on how women understood these terms (Fischer, Stanford, Jameson & DeWitt, 1999).Moos, Petersen, Meadows, Melvin & Spitz (1997) investigated concepts of planning using focus groups of young pregnant African-American women and white women of low or marginal income status in North Carolina, and in Britain the Family Planning Association commissioned a market research company to carry out focus groups and interviews with women of different ages and socio-economic status to explore attitudes to planning (FPA, 1999). Previous studies have also found that it is not always possible to fit women's pregnancies into the dichotomous categories of "planned" and "unplanned" (e.g. Ineichen, 1986; Lester and Farrow, 1988; Macintyre and Cunningham-Burley, 1993; Katbamna, 2000), and Finlay (1996) questioned whether young women would use these terms at all if not prompted by researchers.

In this paper, we will present findings from the initial qualitative stage of a British study which aims to develop a new measure[1] of pregnancy planning/intention. The main focus of our paper will be to outline women's use and definitions of terms (e.g. planned, unplanned, etc) when talking about pregnancy, and consider the implications of these findings for survey measurement.

---

1 By the term "measure" we mean a short set of questions which are valid and reliable, fulfilling psychometric criteria, which can be used in quantitative surveys.

Methods

The overall aim of the study was to develop a new measure of pregnancy planning/intention. In order to do this we had to be begin by finding out whether women used particular concepts or terms when discussing pregnancy and if there was consensus on any particular term which could then inform the develop of the measure. In order to do this we chose an inductive (qualitative) approach which allowed women to describe their own ideas.

Data collection method

Depth interviews were our data collection method of choice for the privacy and flexibility afforded to collect detailed individual histories. Two rounds of depth interviews were carried out: 1) a main round of interviews with pregnant women; and 2) follow up interviews after the birth, with women who continued their pregnancies. In this paper we will concentrate on the main round of interviews. The following topics were included on the 'main round' topic guide: 1) background/socio-demographic information; 2) current pregnancy situation - recruitment circumstances; 3) earliest awareness of pregnancy; 4) confirming pregnancy; 5) contraception around the time of pregnancy; 6) feelings about being pregnant; 7) decision about pregnancy; 8) orientation to motherhood; 9) timing of childbearing; 10) nature of partnership; 11) understanding of terms (planned/unplanned/intended/ unintended/wanted /unwanted). The first three topics usually occurred in the order above, but the order and time spent on the rest of the topics varied widely depending on what the woman had to say. However, understanding of terms (topic 11) was always probed at the end of the interview. Until this topic, interviewers avoided introducing these terms (any mention of the terms by women before topic 11 was spontaneous). After women's understanding of the terms had been explored, they were asked if they would apply any of the (self defined) terms to their pregnancies.

The interviews were carried out at a time and place convenient to the woman. This tended to be at home for older women who were continuing their pregnancies and in the clinic for younger women and those undergoing abortion. All interviews were transcribed verbatim.

Geraldine Barrett, Kaye Wellings, and Rolla Khadduri carried out the interviews (31, 6 and 10 respectively). There were minor differences in interviewing style, but the content of the interviews and the themes emerging from them were consistent.

Sampling stategy

We selected a purposive sample of women with different pregnancy outcomes (continuing to term and abortion) and ensured that each group had a range of ages (i.e. at least one woman, preferably more, in each of the following age bands: 16 and under, 17-19, 20-24, 25-29, 30-34, 35-39, 40 and over). The women were drawn from from antenatal clinics, termination services and one general practitioner

London, Edinburgh, Southampton, and Salisbury to ensure area diversity. The rationale for selecting a diverse group in terms of age, pregnancy outcome, and region was based on our desire to develop a measure that could be applied to any pregnant woman in Britain.

Ethical approval

Multi-centre ethical approval was obtained for the study, together with approval for all local centres.

Analysis

Although review of the transcripts and discussion of themes was an ongoing process during interviewing, the main process of analysis was carried out when data collection was completed. A "framework" technique developed by the National Centre for Social Research was used (Ritchie and Spencer, 1994). The first four steps of this technique were employed primarily to order and manage the data: 1) familiarisation; 2) identifying a thematic framework (and developing a coding frame); 3) indexing (applying codes systematically to the data); 4) charting (rearranging the data according to the thematic content in a way which allows within and between case analysis), in our case using Excel. The fifth step, mapping and interpretation, was the stage at which we began to develop our ideas about the data. This was a process of variously writing descriptive accounts, drawing diagrams to clarify ideas, testing these ideas back against the data and modifying where necessary, looking for associations between concepts and between concepts and women's characteristics (e.g. age, martial/partnership status), and discussing the meaning of what we found.

In relation to women's use and understanding of terms, we had some specific ideas we wished to explore. Firstly, we wanted to see if women did or did not use terms spontaneously, and to check if there were any patterns in those who did/did not (for example were they young, old, married, single?). Existing evidence of pregnancy planning (albeit with questions that we think have limitations) points to older, married women being more likely to have planned pregnancies (e.g. Fleissig, 1991; Brown and Eisenberg, 1995). Hence we were interested if this relationship extended to the spontaneous concepts and language used by women. Secondly, we wanted to find out how women defined the terms when asked to so, to compare this with the only previous study (Fischer et al, 1999). Finally, we wanted to assess how women's applied terms related to the main body of their interviews and to compare this with the previously offered definitions. We felt that the way in which women applied the terms to themselves might be different to the way in which they defined them more formally, and that any differences between these two might provide additional insight into how women understood the terms.

The sample

Of the 47 interviewees in the main round of interviews, 28 women were continuing their pregnancies (although one had a miscarriage a couple of days before the interview). Six were in the first trimester of pregnancy (i.e. 12 weeks or less gestation), 13 were in the second trimester, and ten were in the third

trimester. Of the remaining 19 women, two were about to have abortions and 17 had recently had abortions, usually in the last two weeks; all were in the first trimester except two women who were 19 and 21 weeks respectively.

Interviewees' ages ranged from 15 to 43. In summary, there were 11 teenagers, 15 women in their 20s, 16 women in their 30s, and five women aged 40 or over. Fifteen were married, one was separated, one was divorced, nine were cohabiting, and 21 were single. Thirteen women already had children (eight of the married women, one divorced women, and four of the single women). All fifteen married women were continuing their pregnancies, as were 13 single women. Of the women having abortions, 17 were single, one was divorced, and one was separated.

The sample contained 18 women born abroad (recruited from the London and Edinburgh centres), all of whom were settled in Britain, some with British partners (table 2). Women's countries of origin included: Ireland (one woman), other Western European countries (seven women), Australia (three women), Africa (three women), Asia (two women) and South America (two women).

The educational and occupational level of women in the sample varied widely: 21 had been, or were about to be, in higher education; 14 had been in full time education at least until the age of 18; four women were studying for GNVQs, eight women had left school at 16 or under, and one was still at school.

Findings and Discussion

We present and discuss our findings in four main sections. The first describes women's spontaneous use of terms during the interviews and factors related to this. The second, largely descriptive, section presents women's explanations of the terms. The third describes how women applied the terms to their pregnancies when asked to do so and how these applied terms fitted with the actions and feelings they described earlier in the interview; and the fourth section reflects on women's attitudes towards pregnancy planning.

1) Women's spontaneous use of terms during the interview

Throughout the interviews, women were able to talk at length about the circumstances of their pregnancies. Most did not use the terms "planned", "unplanned", "intended", "unintended", "wanted" or "unwanted" to classify their pregnancies. Unprompted, only 13 women used the terms (or their related verbs) at all. Three of these women explicitly classified their pregnancies as "planned", one of whom also used the term "intended". All three were married, aged over 30, and educated to degree level. Eight women spontaneously used terms such as "unplanned", "unintended", "wasn't planned", and "not

planned" to describe their pregnancies. These women ranged in age from 17 to 37, had varied levels of educational attainment, and included both pregnancies which were being continued and terminated. Two of the eight women (both continuing pregnancy) and a further four women (all terminating) also described their pregnancies as "accidents" or "mistakes". Finally, two women referred to "planning" in passing in their interviews but did not classify their pregnancies; both women were older and educated to degree level. Our data support Finlay's (1996) hypothesis that these terms are not spontaneously used by women. In his study of 62 pregnant teenagers in Northern Ireland, only one used the term "unplanned" spontaneously, leading him to conclude:

> "My unease with the dichotomy between planned and unplanned pregnancy arose from the suspicious that these were not truly 'emic' categories for most respondents. Although they [interviewees] understood the terms, respondents would probably not have used them had the interviewer not introduced them" (Finlay, 1996, p.79).

Our data show that Finlay's suspicion applies not only to teenagers, but to women of a range of ages.

2) Women's explanations of the terms

This section presents the explanations of the terms "planned", "unplanned", "intended", "unintended", "wanted", and "unwanted" provided by the women at the end of the interview when presented with the terms and asked what they understood by them.

"Planned" and "unplanned"

Women were most likely to say a "planned" pregnancy was a pregnancy which a woman and her partner had discussed and agreed beforehand, that there had been a conscious decision to become pregnant, and/or it was a pregnancy where a longer term view had been taken about how the baby would fit into the woman's/couple's life. Other definitions were also offered (figure 1) and generally overlapped the main areas. A few women suggested that it was possible to plan a pregnancy without a partner, but it was seen as unusual, the norm being planning with a partner.

In contrast to "planned", the explanations offered for "unplanned" pregnancy tended to reflect the woman's stance - i.e. her lack of intention - rather than any positive action she may have taken. The words "accident" and "mistake were commonly used by way of explanation (figure 2). This finding is interesting in light of Judith Green's (1997) work on the social construction of accidents. In everyday conversation accidents are characterised as unmotivated and unpredictable events, and therefore "the victim, in an ideal accident, has no previous knowledge of the misfortune and therefore cannot be held responsible" (1997, p.2). However, Green goes on to demonstrate that, in practice, accidents are neither necessarily unmotivated or unpredictable and are, in fact, surrounded by moral enquiry. Debate

about the extent of individual responsibility for an "accidental" or "unplanned" pregnancy can be seen in the women's explorations of the terms. Some women stated that an unplanned pregnancy could be caused by a failure of a method of contraception and some said it could include failure to use contraception, however a minority of women did not accept that failure to use a method of contraception could be a valid criterion with which to define an unplanned pregnancy, e.g.:

> "If you weren't intending to become pregnant and you weren't using contraception, then you're being irresponsible [laughs], and by default you must have been intending to become pregnant, because you weren't doing anything about <u>not</u> becoming pregnant" (GB109).

There was also a minority view that an "unplanned" pregnancy could include some degree of desire for a pregnancy or acceptance if it occurs or having children had been discussed but a specific time has not been set, e.g.:

> "...an unplanned pregnancy I would say, fair enough, it wasn't planned but maybe it was something they were thinking about in .. in the not too far future, that's how I would say it. That is something they had discussed, the couple's probably discussed it and they think it means six months down the line but it happens within a couple of months but it wasn't planned to have one straight away but they are pleased that it's happened" (GB124).

Intended and unintended

On the whole, women were less sure about the definition of an "intended" pregnancy, and tended to take longer in offering their explanations. Many women thought that the term "intended" was interchangeable with the term "planned". Other definitions were also similar to those offered for "planned", e.g. deliberately not using contraception, actively trying to become pregnant, etc. However, a few women saw the term "intended" as distinct from "planned". Where a distinction was made, the additional dimensions to planning were more action orientation, greater deliberation and more precise timing. For example, one woman described the possible difference:

> "... you could always intend to get pregnant but you actually might not have been planning to do it from June 1998 onwards. So perhaps not every intended pregnancy is planned. That's the only thing I would say, that they are not absolutely interchangeable, but on the other hand, loosely speaking one might use them [interchangeably]" (GB101).

We also found there was a minority view that "intended" meant keeping the baby, regardless of the

circumstances. The term "intended" was disliked by some women, who said they would never use it in relation to pregnancy.

The relationship between the terms "unintended" and "unplanned" was similar to that between "intended" and "planned". Many women felt that the term "unintended" was interchangeable with the term "unplanned". As with "unplanned" pregnancy, "unintended" could include the failure of a method of contraception or failure to use contraception, and again, a minority of women did not accept that simple non-use of a method of contraception could be part of the definition. A few women described "unintended" as not wanting the baby. The word "unintended" was similarly disliked by some who said they would never use the word in relation to pregnancy. Conversely, some felt that "unintended" was preferable to "unplanned".

"Wanted" and "unwanted"

Many women found it difficult to define a "wanted" pregnancy, using the same word to explain the term, e.g. wanted is "when you want the baby" (GB122). There was agreement that a pregnancy could become "wanted", despite being unplanned or unintended. It was also equated by some with choosing to continue the pregnancy, rather than opt for an abortion. However, there was also some criticism of the term; some women feeling that it was a weak or emotional term. Similarly, some women believed it could be difficult to apply the term "wanted" to a pregnancy as there could be simultaneous feelings of "wanted" and "unwanted"; it was possible to want a pregnancy but not want it now or with this partner. A minority of women understood "wanted" to be the same as planned and intended, or the direct consequence of planned and intended.

The term "unwanted" produced the strongest emotional reaction and the most disagreement among women in our study. Some women saw it as a harsh, judgmental term, associating it with children rather than pregnancy, e.g.:

> "...because it's like wanted child or unwanted child. Unwanted child, it means .. it reminds me of something like the homeless children or orphans [....] It's like you are .. you are deserting your children" (GB103).

This sort of emotional response came both from women who were continuing their pregnancies and women terminating them.

In many instances, the term "unwanted" was associated with an outcome of abortion or, more rarely, adoption (figure 3). There was an acceptance by a number of women that "unwanted" was a term that only came into play once the pregnancy had occurred, and could be associated with being unhappy about the pregnancy or not wanting the baby. A few women said it was possible for a planned/intended

pregnancy to become unwanted (in contrast to the much greater acceptance that an unplanned/unintended pregnancy could become wanted).

Summary

Overall, there was no uniform agreement about the definition of any term, although there seemed to be most agreement about the term "planned". There was less agreement about the terms "unplanned", "unintended" and "intended", and least agreement about the terms "wanted" and "unwanted". On the basis of this evidence, since women interpret and understand these terms in a variety of ways, using these terms alone to discover the circumstances of women's pregnancies would be inadvisable.

Fischers et al's study

Only one other study has attempted to explore women's concepts of the above terms. The study was carried out in 1996 in Salt Lake City, Utah with 18 pregnant women (13 continuing pregnancy, five about to undergo abortion) using depth interviews (Fischer et al, 1999). They similarly found that women understood the terms in a variety of ways and that "no two women placed the exact same value on factors associated with characterizing a pregnancy as intended, planned, or wanted" (1999, p.119). In the detail of the definitions offered by women, there were similarities and differences between the two studies - the main difference being that in our study women's definitions were more diverse. Also, Fischer et al did not report any criticism of the terms "wanted" and "unwanted" and stated that women equated these terms with continuing or terminating the pregnancy. The findings or our study are clearly different in this respect. This may be due to methodology, sample size, or simply the different views of women in Salt Lake City. However, the broad similarity - that women define these terms in a variety of ways - has obvious implications for survey methodology. It is also interesting to note that these studies are from two developed English-speaking countries, where ideas about pregnancy planning have been current in health policy for over 40 years, and where survey questions about pregnancy planning have been developed and exported worldwide (e.g. Cleland and Scott, 1987; Macro International, 1994). Variation in an international context may be even greater.

3) How women applied the terms when asked to do so

When invited to apply the terms "planned", "unplanned", "intended", "unintended", "wanted", or "unwanted" to their pregnancies at the end of the interview, 43 women did so. In summary, 11 applied "planned", eight applied "intended", 29 applied "unplanned", 14 applied "unintended", 15 applied "wanted" and eight applied "unwanted". The way in which women applied the terms usually related to the way in which they have previously defined them (although not always, as some women subtly changed their definitions at this point), and related to personal preference for terms. For instance, a woman might have defined two terms as interchangeable (e.g. planned and intended) but still chose to apply one term ahead of another, e.g.:

"I think maybe unintended would be.....I like...unplanned doesn't bother me at all but unintended, for me, would be the one that I'd pick" (GB127).

Generally, the terms "planned" and "unplanned" were preferred to "intended" and "unintended".

Three women felt that none of the terms satisfactorily described the circumstances of their pregnancies, and their accounts of the circumstances of their pregnancies reflected much ambivalence, e.g.

"I couldn't say ... I couldn't use as strong a term as planned, in that I didn't 'unplan' a pregnancy, but I don't know if I went as far as to actively plan one .... but having said that, I know enough about contraception to know that if I definitely didn't want to get pregnant I would have been using a ..... or at least been consistently using contraception, rather than inconsistently using it" (GB106)

" ... I mean it was on one level I supp... I wanted and I would like to have another child ....I'd like her to have a sibling. I have two sisters.... I know what she's going to miss out on, but I wouldn't say planned or intended" (KW101).

Women who applied the terms "planned" and "intended"

Of the 11 women who applied the term "planned" to their pregnancies, all were continuing their pregnancies, all were married, most were in their 30s and 40s, and most were educated to degree level. Looking at the main body of their interviews (i.e. all the conversation before the topic on terms was introduced), it emerged that these women had four key criteria in common:

1) they all stated they had had a clear intention to become pregnant;
2) they had not used contraception in order to become pregnant;
3) they had all discussed and agreed with their partners that they would try to conceive;

and

4) they had all made wider lifestyle preparations/reached the right time in their life (e.g. got married, got the right job/house etc).

Some women reported other actions (e.g. take folic acid), but these were minority activities (figure 4).

Of the 11 women who applied the term "planned", seven also applied the term "intended". Another woman described her pregnancy as "intended" but not as "planned":

"I think it would be intended. I intend, you know, but it's not like I've planned it because

> I'm thinking of getting married in November and I don't want to be that big by then or, you know, just have a baby at that time and it was intended but it wasn't planned" (GB111).

By looking at the information this woman gave across her whole interview, it was possible to see that she fitted three, but not all four, of the key criteria outlined above. She did not have the same level of discussion and agreement with her partner about her trying to conceive as the women who described their pregnancies as "planned". She and her partner had a loose background agreement that it would be acceptable to have children in the relationship, but the actual decision of when to get pregnant was left to the woman. She only told her partner about the (potential) pregnancy once she suspected she was pregnant, nearly a year after beginning to try to conceive.

Comparing the explanations offered for "planned" pregnancy with the key criteria for applying the term shows many similarities and some differences. In the explanations offered for "planned" (figure 1), discussion/agreement with partner, conscious decision making, and taking a longer view are major criteria; they become the key criteria for applying the term, along with deliberate non-use of contraception (figure 4). Similarly, targeting fertile periods and pre-conceptual preparations are minor criteria and they do not become key criteria for applying the term. Planning without a partner, which was seen as a less usual, but possible, situation in the offered definitions, was not borne out when applying the term; planning with a partner was a key criterion (figure 4). In fact, when applying the term "planned", women seem to have interpreted the (self-imposed) criteria required for "planning" very strictly. Intending to become pregnant and stopping contraception in order to become pregnant were not, in themselves, sufficient criteria for applying the term "planned"; agreement with a partner and wider life preparations/reaching the right time were also necessary. Even when women met all four criteria, an element of doubt about applying the term "planned" could arise if events were not perceived as being fully under human control (by choice or otherwise). For example, the following two women both applied the term "planned" to their pregnancies (and therefore met the four key criteria), yet felt the need to debate and defend the "planned" status of their pregnancies:

> "I had a boss, who him and his wife - and he used to tell us this, whether it was true or not I don't know - um, but him and his wife planned their pregnancies so that the child would be born at a certain time in the year - this is the honest truth - so that they could get into a sort of school term. And all three children were planned - PLANNED - like that. And I think 'Oh God no!'. We're just nothing like that. Ours was just, 'Oh yeah, once we've moved house we'll have a baby'. That ... you know, that was about as, you know, and we won't use contraception and see how it goes. That was about as planned as we managed to get" (RK101).

> [was being investigated for fertility problems] "...even though I didn't know I was pregnant for three months I would still say our pregnancy was planned ... because when I say to people I didn't know for three months, 'oh it wasn't planned?' I said 'well yes it was planned (laughs) but not in the way that most people plan it'" (GB115).

It is worth noting that in women's descriptions, "planning" was sometimes associated with producing a birth at a specific time (e.g. see extracts GB111, GB113, GB115, GB129). This presentation was not consistent throughout individual interviews or across interviewees, nor was apparent in women's offered definitions (figure 1), but was something which some women moved in and out of in their descriptions. This consideration may indicate a latent criterion of planning which, although not widely accepted by women, may at times influence their interpretation of the term.

The way in which women applied the term "intended" to their pregnancies was largely in line with the offered definition (see previously) in that most women applied the term in the same way as "planned" and one did not. Overall, the term "intended" was not the term of choice.

Women who applied the terms "unplanned" and "unintended"

Of the 29 women who applied the term "unplanned", 13 also applied the term "unintended". One woman applied the term "unintended" but not "unplanned"; she said that although she understood the two words to mean the same thing she felt "unintended" was a "nicer" term. Of the 30 women who applied one or both of the terms, 13 were continuing and 17 were terminating their pregnancies, their ages ranged from 16 to 42, and they included all categories of marital/partnership status. Looking at the main body of their interviews (i.e. all the conversation before the topic on terms was introduced), it was possible to see that the majority of women applying the terms had reported that they had not intended or not wanted to become pregnant. This bore no relationship to their contraceptive situation (i.e. the whole range of contraceptive users and non-users were included) or, linked to this, to women's perceptions of contraceptive risk taking. There was, however, one interesting case of a 25 year old woman who reported that she had intended to become pregnant, but defined her pregnancy as "unplanned". She was clear that her intention had been to get pregnant, she had discussed and agreed the decision to try to conceive with her husband, and had deliberately stopped contraception (three of the four key criteria of women who applied the term "planned"). At one point in the main body of her interview (i.e. before the topic 11) she even uses the word "planning":

> "Well I kept sort of checking [i.e. pregnancy tests] because I thought 'um', well I kept checking every couple of weeks, I don't know why. We had sort of thought about it. And I guess once you make .. people say 'Oh, had you planned it?'. And I said 'Well, we'd thought about it'. I guess once you start thinking about it, then you are planning it, aren't you, really" (GB113).

However, later when asked to apply the terms she defines the pregnancy as "unplanned" because she felt she did not fit the strict criteria of "planning":

> "[planned is] when you make a conscious effort and you sit down and you say, 'OK we're going to plan to work it in with my cycle and then we're going to do that, and we're going to move into the house', and just forward planning I think. Unplanned is when you haven't really planned about it, you haven't done that, you haven't sat down and said 'OK, this, this and I'll put this in my schedule', but you still ... still thought about it. It's still in the back of your mind, and I would call ours unplanned ... in the sense that you've thought about it, and if it happens it happens and it's good, if it doesn't happen ..... that's how I would separate them (GB113).

By looking at the information this woman gave across her whole interview, it was possible to see that she differed from those who defined their pregnancies as "planned" in that she and her husband had taken action so that she would become pregnant, but her not becoming pregnant was an acceptable outcome for them. Also, they had not made wider life preparations/reached the right time in the same way as other couples; the pregnancy, in fact, seemed to disrupt their prior plans for living and working in England.

The way in which women applied the terms "unplanned" or "unintended" was in line with their offered definitions (see earlier), i.e. the woman's intention/desire not to become pregnant was the prime criteria for applying either of the terms, and did not necessarily relate to contraceptive behaviour. As with "planned" and "intended", "unplanned" was generally favoured ahead of "unintended". In the previous offered definition of "unplanned", there was a minority view that an "unplanned" pregnancy could include some degree of desire of acceptance of a pregnancy and this was borne out in the applied definitions by one woman applying the term "unplanned" yet having reported intending to become pregnant.

Women who applied the terms "wanted" and "unwanted" to their pregnancies

Of the 15 women who applied the term "wanted", all were continuing their pregnancies. Six of these women also described their pregnancies as "planned" and nine as "unplanned" or "unintended". Three women, including one who described her pregnancy as "planned", described how it took them some time before they felt they could describe their pregnancies as "wanted". Women who applied the term varied in age and marital/relationship status. Overall, "wanted" was not a greatly favoured term by the women, but the way in which it was applied was close to the definition previously offered by them (see earlier).

Only eight women applied the term "unwanted" to their pregnancies, some of whom did so reservedly. All eight women were terminating their pregnancies. They were aged from 19 to 42, five were single,

two were divorced or separated, and one was cohabiting. It is notable that 11 of the 19 women who were terminating their pregnancies chose *not* to apply the term "unwanted". The quote below illustrates women's reasoning for not doing so:

> "I think the 'unwanted' one is a bit .. I .. I don't like it that much because a lot of the time it's not that I don't want the baby, it's that I can't have it ... well not 'can't', that's another word I should put in, but it's not within my means to have it, and I think it's for the baby's best. But I think 'unwanted' .. it's not that I don't want it at all. I love it just as much because, you know, if I could have it, and I would love to be able to have it, so I think 'unwanted' it a bit of a kind of harsh word in my head." (GB119).

On the whole, the way in which women applied the term "unwanted" was much like the offered definition (figure 3). Women's reluctance to apply the term "unwanted" is interesting in light of the way in which the term "unwanted" is often used as a euphemism for pregnancies ending in abortion in the medical literature (e.g. Smith, 1990; Sulak and Haney, 1993).

4) Reflections on women's attitudes to pregnancy planning

The U.S. study by Moos et al (1997) and the recent British FPA study (FPA, 1999) suggested that lower income women were less likely to plan or wish to plan their pregnancies. Moos et al went so far as to say that even the concept of a "planned" pregnancy was not meaningful some lower socio-economic group women. Whilst our data generally support the hypothesis that lower income women are less likely to plan their pregnancies, they suggest a more complex picture. The women in our study who had "planned" pregnancies did, it is true, tend to be married, older and more highly educated, but equally there were some older, more highly educated women in our sample with pregnancies which were not "planned". Also, it was not possible to neatly classify women as planners and non-planners in terms of their pregnancy histories. Of the 11 women who currently had "planned" pregnancies, two had previous pregnancies which they described as "unplanned" and ended in abortion - one woman when she was aged 18 and single, the other when she was aged 30 and married. Of the other 37 women in our study, sixteen had previously been pregnant, four of whom describing one or more of their previous pregnancies as "planned".

"Planning" behaviour in relation to pregnancy was broadly understood by all women in our study (unlike Moos et al, 1997) and all were able to offer a definition of a "planned" pregnancy when asked to do so. Only two women (both young white working class women) actually indicated an open resistance to pregnancy "planning". One described it as "too clinical" (GB114) and the other wanted the pregnancy to be a surprise. However, this attitude is not entirely consistent because both indicated there were circumstances in which they might engage in "planning" behaviour, as the following extract from one

of the women (discussing the offered terms) demonstrates.

> R: I'd never plan a pregnancy. Even if I was older, I'd like it to be a surprise.
>
> GB: Oh right.
>
> R: ...To me. I'm not going to sit there and say 'Come on let's try for a baby'. I...I don't ...It doesn't really appeal to me that sort of .. [...] I don't want to come in and say 'Oh...my temperature's fine, come on we have to go now 'cause I....it's the most chance I have to get pregnant'. I just want it like...one day so you go to the clinic and they say - 'Oh you're pregnant'. It's like a surprise to me, instead of me planning it and then I go to the clinic and say 'Oh I knew that anyway'. It's just, it's not a surprise to me.
>
> [*Later in interview:*]
> GB: Ok....there's just one thing I want to go back to. Thinking about the future and having children in the future and...preferring not to plan a pregnancy...can you...how does that fit with like contraception, say you're on the pill or something....say you're married, or in the right relationship, and all the circumstances are right...you're on the pill...how does that happen then? *[earlier interviewee had indicated that she wanted to use contraception in future/not have another abortion and had described her ideal circumstances for pregnancy]*
>
> R: Well - if, if I was married and it was all the right circumstances and I was still on the pill and I knew that I wanted to get pregnant I would take myself off it....discuss it with my husband or my partner whoever, discuss it with them and say....like at the minute I do want a child but I'm not prepared to plan it but I will take myself off the pill, so that if it happens it happens and if it don't it don't. [...] I wouldn't set myself an exact date to get pregnant but say if I wanted to get pregnant and my ideal age was for next year I'd take myself off now so it could happen from anytime from here to next year" (GB129).

The resistence to planning expressed by these two young women may reflect fatalistic beliefs about health as found in previous studies (e.g. Pill and Stott, 1982, 1985) but the adoption of planning behaviour some of the time suggests that pregnancy planning is an available choice. *Not* planning may have particular advantages in certain contexts and needs further investigation.

Limitations

In this qualitative stage of our study, we asked pregnant women to reflect on the circumstances of their pregnancies. It is possible that by the time they talked to us, women may have recast their thoughts in light of an ongoing pregnancy or subsequent abortion. However, there are obvious methodological difficulties in interviewing women about their feelings towards pregnancy *before* they are pregnant. Interviewing a sample of women and following up those who become pregnant could be achieved in a longitudinal study, but this would be slow and costly. Also, it is possible that participating in a long term study, periodically describing one's thoughts and feelings about pregnancy, could effect behaviour change that would not otherwise occur. Our choice of interviewing women once they were pregnant then was the most appropriate method given the methodological/practical constraints and also more compatible with the way a measure of pregnancy planning/intention can be used practically in the future.

Conclusions

Awareness that there may be significant problems of validity relating to questions used in national and international studies to elicit pregnancy planning/intention status (e.g. Cleland and Scott, 1987; Cartwright, 1988; Macro International, 1994) provided the impetus to this study. Our primary purpose, as stated above, was to establish how terms such as "planned" and "intended" were understood and used by women. We found that the terms tended not to be used spontaneously. When presented to the women, the terms were broadly understood but there was considerable variation in understanding. Women attached particular nuances of meaning to the terms which could change during the course of conversation and had preferences for particular terms that were not possible to predict. Most (but not all) women were able to apply the terms to their pregnancies and this revealed further variation. We were somewhat surprised to find that intending to become pregnant and stopping contraception were not sufficient, in themselves, for women to apply the term "planned" to their pregnancies; two additional criteria were also necessary (see figure 4). On this evidence, there is a danger that a survey question such as "Was your pregnancy planned?" is likely to elicit a positive response from only a proportion of women who actually had positive intentions of becoming pregnant. In contrast "unplanned", which was a widely applied term in our study, is likely to include both women with positive and negative intentions. For this reason, we believe that relying on terms such as "planned" and "unplanned" in isolation, to collect information about pregnancy circumstances should be avoided.

Despite the research-related aim of this study, it has prompted some interesting reflections on the terminology of pregnancy in the public health context. The terms "planned", "unplanned", "intended", "unintended", "wanted" and "unwanted" are widely used in the context of policy and clinical practice and are similarly assumed to be unproblematic and straightforward. This analysis shows this not to be the

case and we argue that these terms, as Finlay (1996) suspected, are not truly "emic" categories and not a prominent part of the perspective from which women view their pregnancies .

Not only are these terms which may not be used by the majority of women, but this study raises questions relating to women's acceptance of the underlying concept of pregnancy planning. We found some evidence of resistance to pregnancy planning on the part of some women. We believe that attitudes to pregnancy planning would be a fruitful line of future research, providing a backdrop against which to understand the outcome of reproductive health and family planning service provision.

References

Bachrach, C.A., and Newcomer, S. (1999) Contraceptive failure and unintended pregnancy: intended pregnancies and unintended pregnancies: distinct categories or opposite ends of a continuum? *Family Planning Perspectives,* 31, 251-2

Baydar, N. (1995) Consequences for children of their birth planning status *Family Planning Perspectives,* 27, 228-234 and 245

Bone, M. (1973) *Family Planning Services in England and Wales,* London: HMSO

Bone, M. (1978) *The Family Planning Services: changes and effects,* London: Department of Health and Social Security

Brown, S.S., and Eisenberg, L. (eds.) (1995) *The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families,* Washington: National Academy Press

Cartwright, A. (1970) *Parents and Family Planning Services*, London: Routledge Kegan Paul

Cartwright, A. (1976) *How Many Children?*, London: Routledge and Kegan Paul

Cartwright, A. (1988) Unintended pregnancies that lead to babies, *Social Science and Medicine,* 27, 249-254

Chow, L.P., Rider, R.V., Hou, W.I. (1987) Contraceptive and fertility behavior of family planning clinic dropouts: a Maryland study, *American Journal of Public Health,* 77, 975-978

Cleland, J., and Scott, C. (1987) *The World Fertility Survey: an assessment*, Oxford: Oxford University Press

Department of Health. (1992) *The Health of the Nation,* London: HMSO

Dunnell, K. (1979) *Family Formation 1976,* London: HMSO

Fergusson, D.M., Horwood, L.J. (1983) Childhood disadvantage and the planning of pregnancy, *Social Science and Medicine,* 17, 1223-1227

Finlay, A. (1996) Teenage pregnancy, romantic love and social science: an uneasy relationship. In James, V. and Gabe, J. (eds.) *Health and Sociology of the Emotions*, Oxford: Balckwell

Fischer, R.C., Stanford, J.B., Jameson, P., DeWitt, M.J. (1999) Exploring the concepts of intended, planned, and wanted pregnancy, *Journal of Family Practice,* 48, 117-122

Fleissig, A. (1991) Unintended pregnancies and the use of contraception: changes from 1984 to 1989, *BMJ*, 302, 147

FPA. (1999) *Misconceptions: Women's Attitudes to Planning and Preventing Pregnancy,* London: FPA

Freedman, R., Whelpton, P.K., Campbell, A.A. (1959) *Family Planning Sterility and Population Growth,* New York: McGraw Hill

Green, J. (1997) *Risk and Misfortune: the Social Construction of Accidents,* London: UCL Press

Ineichen, B. (1986) Contraceptive experience and attitudes to motherhood of teenage mothers, *Journal of Biosocial Science*, 18, 387-394

Katbamna, S. (2000) *'Race' and Childbirth*, Buckingham: Open University Press

Kaufmann, R.B., Morris, L., and Spitz, A.M. (1997) Comparison of two question sequences for assessing pregnancy intentions, *American Journal of Epidemiology,* 145, 810-816

Lee, P.R., Stewart, F.H. (1995) Failing to prevent unintended pregnancy is costly, *American Journal of Public Health,* 85, 479-480

Lester, C. and Farrow, S. (1988) Unplanned pregnancies at antenatal clinic, *Midwifery,* 4, 184-189

London, K., Peterson, L. and Piccinino, L. (1995) The National Survey of Family Growth: principal source of statistics on unintended pregnancy: supplement to chapter two. In Brown, S.S. and Eisenberg, L. (eds.) (1995) *The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families,* Washington: National Academy Press

Luker, K. (1999) Contraceptive failure and unintended pregnancy: a reminder that human behavior frequently refuses to conform to models created by researchers, *Family Planning Perspectives,* 31, 248-249

MacIntyre, S. and Cunningham-Burley, S. (1993) Teenage pregnancy as a social problem: a perspective from the United Kingdom. In Lawson, A. and Rhode, D.L. *The Politics of Pregnancy: Adolescent Pregnancy, Adolescent Sexuality and Public Policy,* New Haven: Yale University Press

Macro International. (1994) *Women's Lives and Experiences: a decade of research findings from the Demographic and Health Surveys* Program, Calverton, Maryland: Macro International Inc.

Mayer, J.P. (1997) Unintended childbearing, maternal beliefs, and delay of prenatal care, *Birth,* 24, 247-252

McGovern, E., Moss, H., Grewal, G., Taylor, A., Bjornsson, S. and Pell, J. (1997) Factors affecting the use of folic acid supplements in pregnant women in Glasgow, *British Journal of General Practice,* 47, 635-637

Metson, D. (1988) Lessons from an audit of unplanned pregnancies, *BMJ,* 297, 904-906

Moos, M.K., Petersen, R., Meadows, K., Melvin, C.L. and Spitz, A.M. (1997) Pregnant women's perspectives on intendedness of pregnancy, *Women's Health Issues*, 7, 385-392

O'Campo, P., Faden, R.R., Gielen, A.C., Kass, N. and Anderson, J. (1993) Contraceptive and sexual practices among single women with an unplanned pregnancy: partner influences, *Family Planning Perspectives,* 25, 215-219

Peterson, L.S. and Mosher, W.D. (1999) Contraceptive failure and unintended pregnancy: Options for measuring unintended pregnancy in Cycle 6 of the National Survey of Family Growth, *Family Planning Perspectives,* 31, 252-253

Pill, R. and Stott, N.C.H. (1982) Concepts of illness causation and responsibility: some preliminary data from a sample of working class mothers, *Social Science and Medicine,* 16, 43-52

Pill, R. and Stott, N.C.H. (1985) Choice or chance: further evidence on ideas of illness and responsibility for health, *Social Science and Medicine,* 20, 981-991

Price, S.J., Barrett, G., Smith, C. and Paterson, C. (1997) Use of contraception in women who present for termination of pregnancy in inner London, *Public Health,* 111, 377-382

R.C.O.G. (1991) *Report of the RCOG Working Party on Unplanned Pregnancy,* Royal College of Obstetricians and Gynaecologists: London

Ritchie, J. and Spencer, L. (1994) Qualitative data analysis for applied policy research. In Bryman, A. and Burgess, R. (eds.) *Analysing Qualitative Data*, London: Routledge

Ryder, N.B. and Westoff, C.F. (1971) *Reproduction in the United States, 1965,* New Jersey: Princeton University Press

Sable, M.R. (1999) Contraceptive failure and unintended pregnancy: pregnancy intentions may not be a useful measure for research on maternal and child health outcomes, *Family Planning Perspectives,* 31, 249-250

Smith T. 1990 Unwanted pregnancies: high abortion rates indicate failure of family planning services *BMJ,* 300:1154 (editorial)

Smith, C. and McElnay, C. (1994) Measuring the need for contraceptive services: findings from a needs assessment survey, *British Journal of Family Planning,* 20, 88-91

Sulak PJ, Haney AF. 1993 Unwanted pregnancies: understanding contraceptive use and benefits in adolescents and older women *American Journal of Obstetrics and Gynecology* 168:2042-8

Trussell, J., Vaughan, B. and Stanford, J. (1999) Are all contraceptive failures unintended pregnancies? Evidence from the 1995 National Survey of Family Growth, *Family Planning Perspectives,* 31, 246-7 and 260

UNICEF. (1993 *The Progress of Nations: the nations of the world ranked according to their achievements in health, nutrition, education, family planning, and progress for women,* New York: UNICEF

Warner, R., Appleby, L., Whitton, A. and Faragher, B. (1996) Demographic and obstetric risk factors

for postnatal psychiatric morbidity, *British Journal of Psychiatry,* 168, 607-611

Westoff, C.F. and Ryder, N.B. (1977) *The Contraceptive Revolution,* New Jersey: Princeton University Press

Figure 1

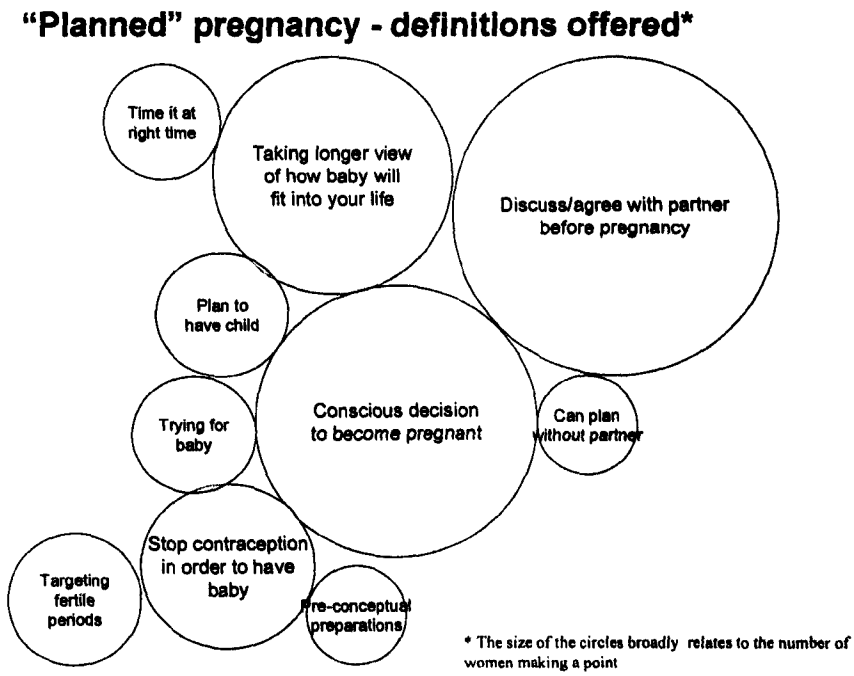


Figure 2

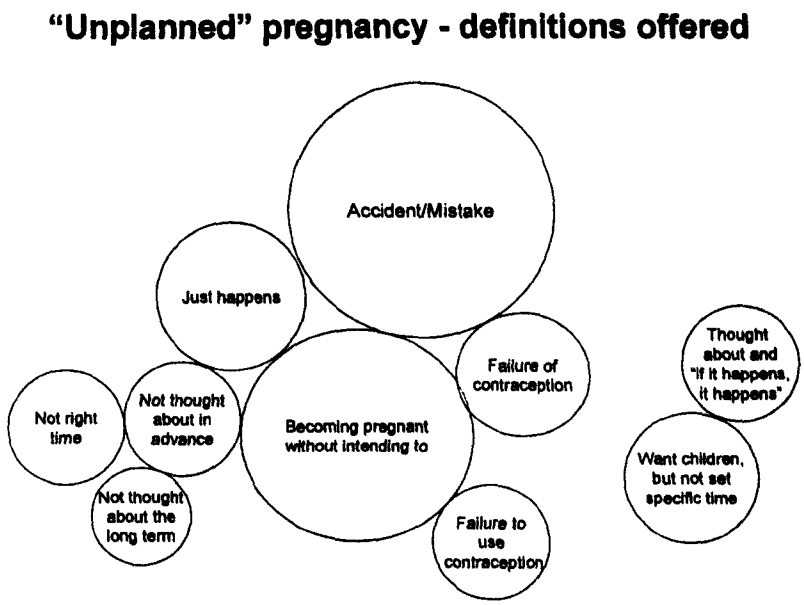


Figure 3

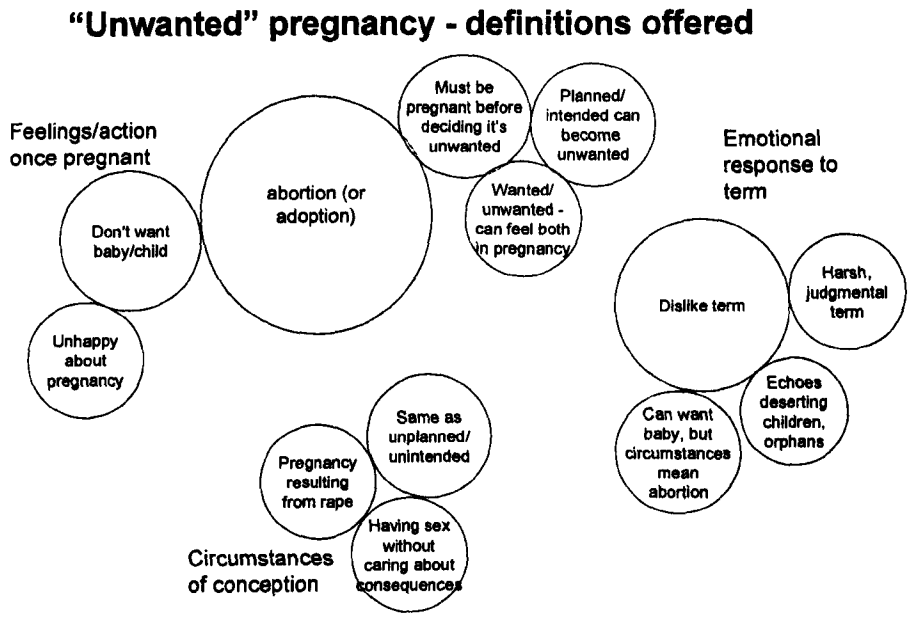


Figure 4

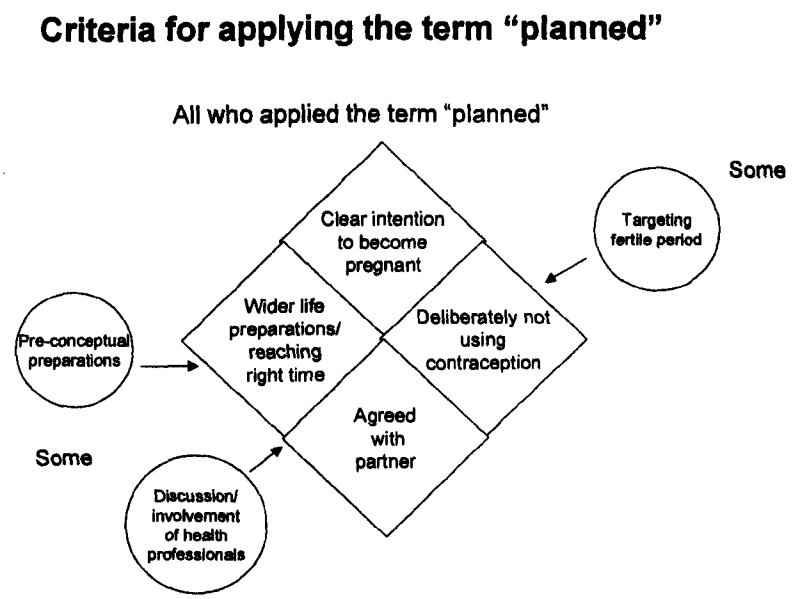


Table 1: Using contraception - unaware of any contraceptive problems

	Preg	Age	MS	Contraceptive situation	Perception of risk	Emergency contraception	Terms applied
GB114	Cont	20	S	Using condoms - unaware of any problem	None	N/A	unplanned
GB120	TOP	37	Div	Using condoms - unaware of any problem	None	N/A	unplanned
GB128	TOP	17	S	One episode of sex - used condom, unaware of any problem	None	N/A	unplanned, unintended

Table 2: Using contraception - experienced an episode of a method failure or other problem

	Preg	Age	MS	Contraceptive situation	Perception of risk	Emergency contraception	Terms applied
GB110	Cont	17	S	Split condom	Yes	Took EC	unplanned and unintended
GB130	TOP	16	S	Split condom	Condom had split on a couple of previous occasions, thought she was unlikely to get pregnant	No	unplanned and unintended
RK103	Cont	33	M	Split condom	Yes	Took EC	unplanned
RK109	Cont	21	S, soon to marry	Condom slipped off	Yes	Took EC	unplanned and unintended
RK110	TOP	20	S	Had been using pill - aware of problems, nauseavomiting. Not using a secondary method of contraception.	Hadn't perceived risk as she thought she was using contraception.		Unplanned
KW102	Cont	31	S	Split condom	Yes, thought there was some risk but small. Had positive feelings about possible pregnancy	No	unplanned
KW104	TOP	31	Sep	Condom slipped off. Thought semen hadn't escaped	Thought there was some risk, but not great	No	unplanned and unintended

Table 3: Women who normally used a method of contraception, but reported an episode(s) of unprotected sex

	Preg	Age	MS	Contraceptive situation	Perception of risk	EC	Terms applied
GB103	TOP	27	S	Using condoms most occasions. Penetration without condom. Condom occasionally not put on.	No great perception of risk. Using method this way for five years.		Unplanned
GB118	TOP	22	S	Recently stopped pill. Using withdrawal method. One occasion boyfriend didn't withdraw.	Aware		unplanned
GB121	TOP	32	S	Using condoms - aware of some risk (?broken condom) - bit vague.	Aware - a reason to suspect pregnancy		unplanned
GB124	TOP	30	S	Normally used condoms. Didn't on one occasion - too fed up to protect herself.	Aware - but not feeling good enough to avoid		unintended and unplanned
GB125	TOP	22	S	Two occasions of unprotected sex - tried to use condoms, but didn't.	Aware - but drugs and alcohol overrode concerns		unplanned, unintended
GB126	TOP	26	S	Normally used condoms. Penetration without condom. One occasion when boyfriend didn't stop to put on condom.	Yes, had row with boyfriend		unplanned, unintended
GB127	TOP	26	S- to marry	Used natural family planning (safe period). One occasion when they got the timing wrong.	Yes, very aware - tried to take EC. Couldn't, so then put risk to back of mind.	Tried to get	unintended (unplanned too), prefers unintended
RK102	Cont	31	M	Normally used withdrawal. On at least one occasion husband didn't withdraw.	No, not mentioned		unplanned
KW105	TOP	38	S	Normally used condoms. Had one episode of unprotected sex.	No great fear of risk at time		unplanned, unintended
KW106	TOP	41	S	One session. Using condoms, but not the whole time.	Perceived some risk during sex, but didn't believe she would become pregnant		unplanned, unintended

Table 4: Women who were non-users or occasional users of contraception

	Preg	Age	MS	Contraceptive situation	Perception of risk	Terms applied
GB107	Cont	17	S	Used condoms first few occasions. Then nothing.	?had some perception, but seemed unable to act	unplanned
GB112	Cont	22	S	Stopped pill because of migraines but didn't use any contraception afterwards. Had been off pill less than three months when she got pregnant.	Doesn't acknowledge risk - says she thought pill might be in system for while, says she was naive. Talks in fatalistic terms	unintended, unplanned
GB116	Cont	16	S	Mostly unprotected sex for all relationship *(follow up interview info)*	"You don't really think about it at the time"	unplanned
GB117	Cont	15	S	Unprotected sex for eight months	No perception of risk	no terms
GB119	TOP	19	S	Stopped pill - got "extremely careless". Four months of unprotected sex	Can't really explain. ?denial of risk. Relationship comfortable, baby with that person not a disaster.	Unintended
GB122	Cont	17	S	No contraception. Got pregnant in couple of months	"Yeah I did (realise risk) but it didn't really bother me because I was with him"	unplanned
GB129	TOP	17	S	UPS for most of previous six months.	No. Didn't think she would get pregnant. Had UPS for a year previously, started to doubt her fertility	Unplanned, unintended
GB131	TOP	19	S	UPS for three months.	No, had taken risks previously and not got pregnant - reassured by this.	Unplanned
RK104	TOP	27	S	UPS since pill scare of 1995 (baby and miscarriage since then - acceptable). Problem with finding acceptable contraception	No, because it had taken her so long to get pregnant previously	Unwanted (unplanned)

Table 4 *cont*: Women who were non-users or occasional users of contraception

	Preg	Age	MS	Contraceptive situation	Perception of risk	Terms applied
RK106	Cont	26	S	Stopped pill a couple of months before because she says she wasn't comfortable with it anymore.	Doesn't acknowledge risk.	Unplanned
RK108	Cont	17	S	Occasionally used condoms	"I didn't really think about it"	unplanned

CIRCUMSTANCES OF PREGNANCY

Below are some questions that ask about your circumstances and feelings around the time you became pregnant. Please think of your current (or most recent) pregnancy when answering the questions below

SECTION 1: YOUR PREGNANCY

1) Around the time I became pregnant.....
(Please tick the statement which most applies to you):

☐ I/we didn't use contraception

☐ I/we used contraception, but not on every occasion

☐ I/we always used contraception, but knew that the method had failed (i.e. broke, moved, came off, came out etc) at least once

☐ I/we always used contraception

2) Around the time I became pregnant, I/we used the following methods of contraception.....
(Please tick all that apply)

☐ emergency contraception *(also sometimes called the morning after pill)*

☐ condom

☐ pill *(including combined pill and progesterone only or mini pill)*

☐ injectable (or Depo) contraception

☐ diaphragm/cap

☐ IUD/coil

☐ safe period

☐ withdrawal

☐ other method, please describe: _____

☐ no contraception

3) How do you feel about the timing of your pregnancy in terms of the following?:
(please tick one in each group)

	your relationship	**becoming a mother (again)**
right time	☐	☐
ok, but not quite right time	☐	☐
wrong time	☐	☐
	living arrangements	**money/financial situation**
right time	☐	☐
ok, but not quite right time	☐	☐
wrong time	☐	☐

4) Just before I became pregnant.....
(Please tick the statement which most applies to you):

☐ I intended to get pregnant

☐ I didn't have any particular intentions

☐ I did not intend to get pregnant

5) Just before I became pregnant....
(Please tick the statement which most applies to you)

☐ I wanted to have a baby

☐ I had mixed feelings about having a baby

☐ I did not want to have a baby

In the next two questions, we ask about your partner - this might be (or have been) your husband, a partner you live with, a boyfriend, or someone you've had sex with once or twice.

6) Just before I became pregnant....
(Please tick the statement which most applies to you)

☐ My partner and I had agreed that we would like me to be pregnant

☐ My partner and I had discussed having children together, but hadn't agreed for me to get pregnant

☐ We never discussed having children together

7) Just before I became pregnant.....
(Please tick the statement which most applies to you)

☐ My partner wanted me to have a baby

☐ My partner had mixed feelings about me having a baby

☐ My partner did not want me to have a baby

8) Before you became pregnant, did you do anything to improve your health in preparation for pregnancy?
(Please tick all that apply)

☐ took folic acid

☐ stopped or cut down smoking

☐ stopped or cut down drinking alcohol

☐ ate more healthily

☐ took some other action, please describe _____

☐ none of the above

SECTION 2: ABOUT YOU

9) How old are you?

_____ years ***(Please write in your age)***

10) Are you....?

(Please tick one box)

☐ married

☐ single

☐ divorced or separated

☐ widowed

11) Apart from children, who do you live with?

(Please tick one box)

☐ partner/husband

☐ partner/husband *and* (your/his) parents

☐ parents

☐ alone

☐ other relatives or friends

☐ other (e.g. hall or residence, living in accommodation provided with your job, etc)

12) Are you.....?

(Please tick the statement which <u>most</u> applies)

☐ working full time

☐ working part time

☐ on maternity leave

☐ unemployed

☐ a housewife and/or looking after children

☐ in education (e.g. school, college, university)

13) When did you leave full time education?

(Please tick one box)

☐ age 16 or younger

☐ age 17

☐ age 18

☐ age 19

☐ age 20

☐ age 21 or over

☐ I am still in full time education

14) How many children do you have?

_____ ***(Please write in the number of children you have)***

15) How old are your children (or child)?
(Please write in the ages of your children, and delete 'months/years' as appropriate)

_____ (months/years) _____ (months/years) _____ (months/years)

_____ (months/years) _____ (months/years) _____ (months/years)

16) Were you born in Britain?
(Please tick one box)

☐ Yes

☐ No

17) Which of the following groups do you feel describes you best?
(Please tick the group which <u>most</u> applies)

☐ White

☐ Black - Caribbean

☐ Black - African

☐ Black - other (please describe) _____

☐ Indian

☐ Pakistani

☐ Bangladeshi

☐ Chinese

☐ Any other ethnic group (please describe) _____

3b) How do you feel about the timing of your pregnancy in terms of the following?:
(please tick one in each group)

	your relationship	**becoming a mother (again)**
just right	☐	☐
too soon	☐	☐
too late	☐	☐
no time would be right	☐	☐

	living arrangements	**money/financial situation**
just right	☐	☐
too soon	☐	☐
too late	☐	☐
no time would be right	☐	☐

3c) How do you feel about the timing of your pregnancy in terms of the following?:
(please tick one in each group)

	your relationship	**becoming a mother (again)**
ideal time	☐	☐
ok, but not ideal time	☐	☐
bad time	☐	☐

	living arrangements	**money/financial situation**
ideal time	☐	☐
ok, but not ideal time	☐	☐
bad time	☐	☐

CIRCUMSTANCES OF PREGNANCY

Below are some questions that ask about your circumstances and feelings around the time you became pregnant. Please think of your current (or most recent) pregnancy when answering the questions below

SECTION 1: YOUR PREGNANCY

1) In the month that I became pregnant.....
(Please tick the statement which <u>most</u> applies to you):

☐ I/we were not using contraception

☐ I/we were using contraception, but not on every occasion

☐ I/we always used contraception, but knew that the method had failed (i.e. broke, moved, came off, came out, not worked etc) at least once

☐ I/we always used contraception

2) In the month that I became pregnant, I/we used the following methods of contraception.....
(Please tick <u>all</u> that apply)

☐ no contraception

☐ condom

☐ pill (*including combined pill and progesterone only or mini pill)*

☐ injectable (or Depo) contraception

☐ diaphragm/cap

☐ IUD/coil

☐ safe period

☐ withdrawal

☐ other method, please describe: _____

3) In the month that I became pregnant .....
(Please tick the statement which <u>most</u> applies to you):

☐ I did not think about using Emergency Contraception*

☐ I did not use Emergency Contraception*, but I thought about using it

☐ I used Emergency Contraception*

**Emergency contraception can be used after unprotected sex or contraceptive failure. Most women take it as hormonal pills up to 72 hours after sexual intercourse (also sometimes known as the morning after pill). Occasionally, women may have an IUD (or coil) fitted up to five days after sexual intercourse.*

4) How do you feel about the timing of your pregnancy in terms of the following?:
(please tick one in each group)

	your relationship	**becoming a mother** *(first time or again)*
right time	☐	☐
ok, but not quite right time	☐	☐
wrong time	☐	☐
	living arrangements	**money/financial situation**
right time	☐	☐
ok, but not quite right time	☐	☐
wrong time	☐	☐

5) Just before I became pregnant.....
(Please tick the statement which most applies to you):

☐ I intended to get pregnant

☐ my intentions kept changing

☐ I did not intend to get pregnant

6) Just before I became pregnant....
(Please tick the statement which most applies to you)

☐ I wanted to have a baby

☐ I had mixed feelings about having a baby

☐ I did not want to have a baby

In the next two questions, we ask about your partner - this might be (or have been) your husband, a partner you live with, a boyfriend, or someone you've had sex with once or twice.

7) Just before I became pregnant....
(Please tick the statement which most applies to you)

☐ My partner and I had agreed that we would like me to be pregnant

☐ My partner and I had discussed having children together, but hadn't agreed for me to get pregnant

☐ We never discussed having children together

8) Just before I became pregnant.....
(Please tick the statement which most applies to you)

☐ My partner wanted me to have a baby

☐ My partner had mixed feelings about me having a baby

☐ My partner did not want me to have a baby

9) Before you became pregnant, did you do anything to improve your health in preparation for pregnancy?
(Please tick all that apply)

- ☐ took folic acid
- ☐ stopped or cut down smoking
- ☐ stopped or cut down drinking alcohol
- ☐ ate more healthily
- ☐ sought medical/health advice
- ☐ took some other action, please describe _____

or

- ☐ I did not do any of the above before my pregnancy

SECTION 2: ABOUT YOU

10) Are you pregnant at the moment?
(Please tick one box)

- ☐ Yes
- ☐ No → ***please go to question 13***

11) How many weeks pregnant are you?

_____ weeks ***(please put the number of weeks you are pregnant)***

12) Are you planning to continue or stop your pregnancy?
(Please tick one box)

- ☐ continue pregnancy, i.e. have the baby → ***please go to question 14***
- ☐ stop pregnancy, i.e. have an abortion → ***please go to question 14***

13) How did your most recent pregnancy end?
(Please tick one box)

- ☐ live birth (i.e. birth of a live baby)
- ☐ stillbirth (i.e. birth of a baby that is not alive, past 24 weeks' pregnancy)
- ☐ miscarriage
- ☐ abortion

14) How old are you?

_____ years ***(Please put your age)***

15) How many children do you have?
(Please tick one box)

☐ None → ***please go to question 17***
☐ 1 child
☐ 2 children
☐ 3 children
☐ 4 or more children

16) How old are your children (or child)?
(Please write in the ages of your children, and delete 'months' or 'years' as appropriate)

_____ (months/years) _____ (months/years) _____ (months/years)

_____ (months/years) _____ (months/years) _____ (months/years)

17) Apart from children, who do you live with?
(Please tick one box)

☐ husband
☐ partner
☐ husband *and* (your/his) parents
☐ partner *and* (your/his) parents
☐ parents
☐ alone
☐ other relatives or friends
☐ other (e.g. hall or residence, living in accommodation provided with your job, etc)

18) Are you.....?
(Please tick <u>all</u> that apply)

☐ working full time
☐ working part time
☐ unemployed
☐ looking after the home or children
☐ in education (e.g. school, college, university)
☐ on maternity leave

19) When did you leave full time education?
(Please tick one box)

☐ age 16 or younger
☐ age 17
☐ age 18
☐ age 19
☐ age 20
☐ age 21 or over
☐ I have not left full time education yet → ***please go to qu.21***

20) Have you returned to full or part time study since leaving full time education?
(Please tick one box)

☐ Yes

☐ No

21) Were you born in Britain?
(Please tick one box)

☐ Yes

☐ No

22) What is your ethnic group?
Choose one section from (a) to (e) then tick the appropriate box to indicate your cultural background

a) White

☐ British

☐ Irish

☐ Any other White background
please write in below

_____

b) Mixed

☐ White and Black Caribbean

☐ White and Black African

☐ White and Asian

☐ Any other mixed background
please write in below

_____

c) Asian or Asian British

☐ Indian

☐ Pakistani

☐ Bangladeshi

☐ Any other Asian background
please write in below

_____

d) Black or Black British

☐ Caribbean

☐ African

☐ Any other Black background
please write in below

_____

e) Chinese or other ethnic group

☐ Chinese

☐ Any other
please write in below

_____

SHORT REPORT

Collecting information on marital status: a methodological note

G Barrett, K Wellings

J Epidemiol Community Health 2002;**56**:175–176

Marital status is often probed in epidemiological, public health, and social surveys, and has been shown to be associated with various health outcomes. However, in the past 25 years there has been a trend towards cohabitation, and higher rates of divorce and remarriage.[1]Bir th registration data also show that nearly 40% of births are outside marriage, a large proportion of which are to cohabiting couples.[2] The way in which data are collected has tended to reflect the increase in cohabitation; "living with partner" tends to be an additional category of marital status, for example, Johnson *et al*.[3] In our recent work (a study to develop a measure of unplanned pregnancy) we wanted to identify both women's marital status and who they were living with because previous research has shown that the life experiences of certain groups (for example, never married cohabiting mothers, previously married cohabiting mothers, and never married lone mothers) are different.[4] Collecting these data was more complicated that we had expected.

We piloted our questions with 26 women and used interview techniques to assess their understanding, similar to a method used by Donovan *et al*.[5]W e soon realised there was a problem with version 1 of the marital status questions (table 1). One interviewee (aged 22, living with partner) left the question blank and afterwards reported that she had been confused over which to tick. A second interviewee (aged 42, living with partner for past 18 years) ticked "single" but put a question mark against it and afterwards commented on her dissatisfaction with this question. A third woman (aged 37, living with partner) ticked "single" but stated that she disliked "single" because of its connotations of "single mother".

In version 2, we placed the "living with" question first and changed "single" to "unmarried". Seven women completed these questions, and it was clear that no problems had been solved. One woman (age 37, living with partner for past 12 years) ticked "unmarried". Afterwards it emerged that she had previously been married for five years—so was technically in the "divorced/separated" category. She was answering the question with her current partnership in mind, rather than her legal status with regard to marriage. Two other women ticked "married" but hesitated some time over the question. We felt there was sufficient doubt about the validity of the question and decided to omit it altogether in version 3, and separated out "husband" and "partner" in the remaining question. This question worked well with the remaining pilot interviewees and the 1000 plus women who took part in the field testing.

Table 1 Questions piloted

	All questions had tick boxes and instruction "please tick one box"
Version 1	1) Are you....? married single divorced or separated widowed 2) Apart from children, who do you live with? partner/husband partner/husband *and* (your/his) parents parents alone friends or other relative other (for example, hall or residence, living in accommodation provided with your job, etc)
Version 2	1) Apart from children, who do you live with? partner/husband partner/husband *and* (your/his) parents parents alone other relatives or friends other (for example; hall or residence, living in accommodation provided with your job, etc) 2) What is your marital status? married unmarried divorced or separated widowed
Version 3	Apart from children, who do you live with? husband partner husband *and* (your/his) parents partner *and* (your/his) parents parents alone other relatives or friends other (for example, hall or residence, living in accommodation provided with your job, etc)

CONCLUSIONS

We were surprised at the number of problems we encountered with the marital status question. Generally, women did not see the categories as representing their legal state in relation to marriage, but understood them in a more colloquial sense. However, by omitting the marital status question we are simply focusing on the presence of a partner in the home; we are not able to identify particularly subgroups of interest (for example, never married lone mothers, previously married cohabiting mothers). As partnership histories become more complicated, we cannot assume that old relationships between marital status and health outcomes still stand, and research is required to see if there are new patterns. However, asking about marital status is no longer straightforward; research instruments must take account of the fact that responses will be made in terms of lay conventions rather than official categories, and there may be disparities and discontinuities between the two. Questions that can collect complex information about partnership/marital histories, yet are valid in lay terms, and are reliable and concise, need to be developed.

Funding: GB was funded by a Medical Research Council/London Region special training fellowship in health services research.

Conflicts of interest: none.

Authors' affiliations
G Barrett, K Wellings, London School of Hygiene and Tropical Medicine, London

Correspondence to: Dr G Barrett, Health Promotion Research Unit, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK; geraldine.barrett@lshtm.ac.uk

REFERENCES

1 **Haskey J**. Demographic issues in 1975 and 2000. *Popul Trends* 2000;**100**:20–31.
2 **Botting B**, Dunnell K. Trends in fertility and contraception in the last quarter of the 20th century. *Popul Trends* 2000;**100**:32–9.
3 **Johnson AM**, Wadsworth J, Wellings K, *et al*. *Sexual attitudes and lifestyles* Oxford: Blackwell Scientific, 1994.
4 **Haskey J**. Having a birth outside marriage: the proportions of lone mothers and cohabiting mothers who subsequently marry *Popul Trends* 1999;**97**:6–18.
5 **Donovan JL**, Frankel SJ, Eyles JD. Assessing the need for health status measures *J Epidemiol Community Health* 1993;**47**:158–62.

CIRCUMSTANCES OF PREGNANCY

Below are some questions that ask about your circumstances and feelings around the time you became pregnant. Please think of your current (or most recent) pregnancy when answering the questions below.

SECTION 1: YOUR PREGNANCY

1) In the month that I became pregnant.....
(Please tick the statement which most applies to you):

☐ I/we were not using contraception

☐ I/we were using contraception, but not on every occasion

☐ I/we always used contraception, but knew that the method had failed (i.e. broke, moved, came off, came out, not worked etc) at least once

☐ I/we always used contraception

2) In terms of becoming a mother *(first time or again)*, I feel that my pregnancy happened at the.....
(Please tick the statement which most applies to you):

☐ right time

☐ ok, but not quite right time

☐ wrong time

3) Just before I became pregnant.....
(Please tick the statement which most applies to you):

☐ I intended to get pregnant

☐ my intentions kept changing

☐ I did not intend to get pregnant

4) Just before I became pregnant....
(Please tick the statement which most applies to you)

☐ I wanted to have a baby

☐ I had mixed feelings about having a baby

☐ I did not want to have a baby

In the next question, we ask about your partner - this might be (or have been) your husband, a partner you live with, a boyfriend, or someone you've had sex with once or twice.

5) Before I became pregnant....
(Please tick the statement which most applies to you)

☐ My partner and I had agreed that we would like me to be pregnant

☐ My partner and I had discussed having children together, but hadn't agreed for me to get pregnant

☐ We never discussed having children together

6) Before you became pregnant, did you do anything to improve your health in preparation for pregnancy?
(Please tick all that apply)

- ☐ took folic acid
- ☐ stopped or cut down smoking
- ☐ stopped or cut down drinking alcohol
- ☐ ate more healthily
- ☐ sought medical/health advice
- ☐ took some other action, please describe _____

or

- ☐ I did not do any of the above before my pregnancy

SECTION 2: ABOUT YOU

7) Are you pregnant at the moment?
(Please tick one box)

- ☐ Yes
- ☐ No → ***please go to question 10***

8) How many weeks pregnant are you?

_____ weeks ***(please put the number of weeks you are pregnant)***

9) Are you planning to continue or stop your pregnancy?
(Please tick one box)

- ☐ continue pregnancy, i.e. have the baby → ***please go to question 11***
- ☐ stop pregnancy, i.e. have an abortion → ***please go to question 11***

10) How did your most recent pregnancy end?
(Please tick one box)

- ☐ live birth (i.e. birth of a live baby)
- ☐ stillbirth (i.e. birth of a baby that is not alive, past 24 weeks' pregnancy)
- ☐ miscarriage
- ☐ abortion

11) How old are you?

_____ years ***(Please put your age)***

12) How many children do you have?
(Please tick one box)

☐ None → ***please go to question 14***
☐ 1 child
☐ 2 children
☐ 3 children
☐ 4 or more children

13) How old are your children (or child)?
(Please write in the ages of your children, and delete 'months' or 'years' as appropriate)

_____ (months/years) _____ (months/years) _____ (months/years)

_____ (months/years) _____ (months/years) _____ (months/years)

14) Apart from children, who do you live with?
(Please tick one box)

☐ husband
☐ partner
☐ husband *and* (your/his) parents
☐ partner *and* (your/his) parents
☐ parents
☐ alone
☐ other relatives or friends
☐ other (e.g. hall or residence, living in accommodation provided with your job, etc)

15) Are you.....?
(Please tick <u>all</u> that apply)

☐ working full time
☐ working part time
☐ unemployed
☐ looking after the home or children
☐ in education (e.g. school, college, university)
☐ on maternity leave

16) When did you leave full time education?

(Please tick one box)

- ☐ age 16 or younger
- ☐ age 17
- ☐ age 18
- ☐ age 19
- ☐ age 20
- ☐ age 21 or over
- ☐ I have not left full time education yet → ***please go to qu.18***

17) Have you returned to full or part time study since leaving full time education?

(Please tick one box)

- ☐ Yes
- ☐ No

18) Were you born in Britain?

(Please tick one box)

- ☐ Yes
- ☐ No

19) What is your ethnic group?

Choose one section from (a) to (e) then tick the appropriate box to indicate your cultural background

a) White

- ☐ British
- ☐ Irish
- ☐ Any other White background
  please write in below

_____

b) Mixed

- ☐ White and Black Caribbean
- ☐ White and Black African
- ☐ White and Asian
- ☐ Any other mixed background
  please write in below

_____

c) Asian or Asian British

- ☐ Indian
- ☐ Pakistani
- ☐ Bangladeshi
- ☐ Any other Asian background
  please write in below

_____

d) Black or Black British

- ☐ Caribbean
- ☐ African
- ☐ Any other Black background
  please write in below

_____

e) Chinese or other ethnic group

- ☐ Chinese
- ☐ Any other
  please write in below

_____

Please put the date you filled in the questionnaire:

_____ / _____ / _____

crash

'CIRCUMSTANCES OF PREGNANCY' STUDY

INFORMATION

We are currently carrying out a study of the circumstances of women's pregnancies, paid for by the Medical Research Council and the National Health Service. You are probably aware that figures for birth rates, marriages and divorces, abortion rates, single parents and such like are collected nationally each year and used by the government to help plan and monitor health and social services. The figures do not always describe our lives as we ourselves would, especially when events like pregnancy are involved, and our aim is to make the figures fit the facts better by taking women's views into account. This study aims to develop a more accurate way of collecting information about women's pregnancy circumstances.

The 'circumstances of pregnancy' study is a national study which started in October 1998. Throughout 1999 we carried out interviews with women who were pregnant (both continuing and terminating pregnancy) and with women who had babies, asking them about their circumstances, thoughts and feelings about pregnancy. From these interviews we have developed the questions you see today. These questions will be used in larger national and international surveys such as the Infant feeding Survey, the General Household Survey (in the fertility section), and the European Fertility Survey to collect information to help guide government policy. Before these questions can be used we need to ensure they are easy to fill in. This is why we are asking you if you can help us today.

Please help us by completing the questions as fully and honestly as possible. They are straight forward and take less than five minutes to complete. The information you give us is **strictly confidential**.

If you would like more information about the study, the researcher here will be happy answer questions or, alternatively, you can ring the number below.

Your help is much appreciated!

Geraldine Barrett, Kaye Wellings,
Sexual Health Programme, University of London,
Tel. freephone 0800 3892660 or 020 7927 2268

Anna Glasier, Lothian Healthcare NHS Trust
Lothian Healthcare NHS Trust and University of Edinburgh

Consortium for Research into Reproductive and Sexual Health

London School of Hygiene & Tropical Medicine (University of London)
Keppel Street,
London WC1E 7HT

Telephone:
+44 (0)171 927 2036

Fax:
+44 (0)171 580 6507

Telex:
8953474

E-mail:
s.scutt@lshtm.ac.uk

Clinic sessions attended for first field test

Area/Centre	Clinic type	Date (no. of sessions) [researcher]			Questionnaires completed
St George's, S. London	antenatal	2.10.00	(2)	[GB, PK]	17
		3.10.00	(1)	[GB, PK]	17
		5.10.00	(1)	[PK]	9
		6.10.00	(1)	[PK]	22
		9.10.00	(1)	[PK]	10
		10.10.00	(1)	[PK]	11
		13.10.00	(1)	[PK]	16
		16.10.00	(2)	[PK]	16
Princess Anne, Southampton	antenatal	11.10.00	(3)	[GB, MM]	48
Royal Infirmary, Edinburgh	antenatal	24.10.00	(2)	[GB, MM]	45
		25.10.00	(2)	[GB, MM]	42
	TOP	24.10.00	(1)	[GB]	14
		25.10.00	(1)	[GB]	12
Raymede/St Mary's, W. London	TOP	9.10.00	(1)	[GB, PK]	4
		10.10.00	(1)	[PK]	3
		12.10.00	(1)	[PK]	7
		16.10.00	(1)	[GB]	6
		19.10.00	(1)	[PK]	6
		23.10.00	(1)	[PK]	6
		24.10.00	(1)	[PK]	3
		26.10.00	(1)	[PK]	4
		31.10.00	(1)	[PK]	4
N.Middx Hosp, N.London	TOP	17.10.00	(1)	[GB]	0
		31.10.00	(1)	[GB]	2
W.Herts Community Trust*	child health clinics	6.10.00	(1)	[GB, MM]	7
		13.10.00	(2)	[GB, MM]	19
		18.10.00	(2)	[GB, MM]	29

* Clinics included: Principal Health Centre, Lodge Surgery, and Grange Street Clinic, all in St Albans, and St Luke's clinic in Bricket Wood.

Clinic sessions attended for second field test

Area/Centre	Clinic type	Date (no. of sessions) [researcher]			Questionnaires completed
St George's, S.London	antenatal	14.11.00	(1)	[GB, PK]	11
		17.11.00	(1)	[PK]	15
		20.11.00	(2)	[PK]	14
		21.11.00	(1)	[PK]	12
		24.11.00	(1)	[PK]	9
		27.11.00	(2)	[PK]	24
		28.11.00	(1)	[PK]	13
		1.12.00	(1)	[PK]	7
		4.12.00	(1)	[PK]	7
		8.12.00	(1)	[PK]	9
		11.12.00	(1)	[PK]	12(133)
Princess Anne, Southampton	antenatal	22.11.00	(3)	[GB, MM]	41
		18.12.00	(1)	[GB]	25
		9.1.01*	(1)	[GB]	24 (90)
	TOP**	16.01.01	(1)	[GB]	5
		23.01.01	(1)	[GB]	6
		30.01.01	(1)	[GB]	5 (16)
Royal Infirmary, Edinburgh	antenatal	27.11.00	(2)	[GB, MM]	23
		28.11.00	(2)	[MM]	39
		29.11.00	(2)	[GB, MM]	28 (90)
	TOP	27.11.00	(1)	[GB]	8
		28.11.00	(1)	[GB]	10
		29.11.00	(1)	[GB]	14 (32)
Raymede/St Mary's, W. London	TOP	20.11.00	(1)	[GB]	6
		21.11.00	(1)	[PK]	5
		23.11.00	(1)	[PK]	6
		28.11.00	(1)	[PK]	5
		30.11.00	(1)	[PK]	4
		4.12.00	(1)	[PK]	4
		5.12.00	(1)	[PK]	3
		7.12.00	(1)	[PK]	4
		11.12.00	(1)	[PK]	7
		12.12.00	(1)	[PK]	4
		14.12.00	(1)	[PK]	7
		19.12.00	(1)	[PK]	5
		21.12.00	(1)	[PK, GB]	6 (66)
N.Middx Hosp, N.Lon.	TOP	12.12.00	(1)	[GB]	2
Salisbury	TOP	1.12.00	(1)	[GB]	6
		8.12.00	(1)	[GB]	6
		15.12.00	(1)	[GB]	4
		5.12.01	(1)	[GB]	6
		19.1.01	(1)	[GB]	2
		2.2.01	(1)	[GB]	6 (30)
W.Herts Community Trust***	child health clinics	24.11.00	(2)	[GB, MM]	32
		6.12.00	(1)	[MM]	12
		7.12.00	(1)	[MM]	13
		14.12.00	(1)	[MM]	16
		15.12.00	(1)	[MM]	7 (80)

* clinic held in Bittern community health centre, Southampton
** Held in The Quays Community Health Centre
*** Clinics included: Principal Health Centre, Lodge Surgery, Grange Street Clinic and Midway clinic, all in St Albans.

crash

14th November 2000

Dear

RE: Circumstances of Pregnancy Study

We are writing to you to see if you would take part in the circumstances of pregnancy study by filling in and returning the enclosed questionnaire in the pre-paid envelope. The 'circumstances of pregnancy' study is a national study which started in October 1998. It is funded by the Medical Research Council and the National Health Service. As you are probably aware, figures for birth rates, marriages and divorces, abortion rates, single parents and such like are collected nationally each year and used by the government to help plan and monitor health and social services. The figures do not always describe our lives as we would ourselves, especially when events like pregnancy are involved. Our aim is to make the figures fit the facts better by taking women's views into account. The study aims to develop a more accurate way of collecting information about women's pregnancy circumstances

Throughout 1999 we carried out interviews with women who were pregnant (both continuing and terminating pregnancy) and with women who had babies, asking them about their circumstances, thoughts and feelings about pregnancy. From these interviews we have developed the questions you see today. These questions will be used in larger national and international surveys such as the Infant feeding Survey, the General Household Survey (in the fertility section), and the European Fertility Survey to collect information to help guide government policy. Before these questions can be used we need to ensure they are easy to fill in. This is why we are asking you if you would consider filling in the questionnaire.

Please help us by completing the questions as fully and honestly as possible. They are straight forward and take less than five minutes to complete. The information you give us is **strictly confidential**. If you would like more information about the study, please ring the number below.

Your help is much appreciated!

Yours sincerely,

Geraldine Barrett

Consortium for Research into Reproductive and Sexual Health

London School of Hygiene & Tropical Medicine (University of London)
Keppel Street,
London WC1E 7HT

Telephone:
+44 (0)171 927 2036

Fax:
+44 (0)171 580 6507

Telex:
8953474

E-mail:
s.scutt@lshtm.ac.uk

Sexual Health Programme, University of London,
Tel. freephone 0800 3892660 or 020 7927 2268

Isaac Manyonda, Consultant
St George's Healthcare NHS Trust, London SW17

4th January 2000

Dear

RE: Circumstances of Pregnancy Study

You may remember we wrote to you in November asking if you could help with this study. We realise that life with a small baby can be very busy, particularly in the run up to Christmas, and we have enclosed is another copy of the questionnaire and a pre-paid reply envelope. If you are able to fill in the questionnaire we would be very grateful. All information you give is **strictly confidential** and only ever used ir anonymous form. Below is some information about the study, and if you would like to ask us further questions, please do not hesitate to telephone us using the number at the bottom of the letter.

The 'circumstances of pregnancy' study is a national study which started in October 1998. It is funded by the Medical Research Council and the National Health Service. As you are probably aware, figures for birth rates, marriages and divorces, abortion rates, single parents and such like are collected nationally each year and used by the government to help plan and monitor health and social services. The figures do not always describe our lives as we would ourselves, especially when events like pregnancy are involved. Our aim is to make the figures fit the facts better by taking women's views into account. The study aims to develop a more accurate way of collecting information about women's pregnanc circumstances. The questions will eventually be used in larger national and international surveys such as the Infant feeding Survey, the General Household Survey (in the fertility section), and the European Fertility Survey to collect information to help guide government policy. Before these questions can be used we need to ensure they are easy to fill in. Please help us by completing the questions as fully and honestly as possible. They are straight forward and take less than five minutes to complete.

Your help is much appreciated.

If you have already returned this questionnaire, please ignore this letter.

Yours sincerely,

Geraldine Barrett

Sexual Health Programme, University of London,
Tel. freephone 0800 3892660 or 020 7927 2268

Isaac Manyonda, Consultant
St George's Healthcare NHS Trust, London SW17

Consortium for Research into Reproductive and Sexual Health

London School of Hygiene & Tropical Medicine (University of London)
Keppel Street,
London WC1E 7HT

Telephone:
+44 (0)171 927 2036

Fax:
+44 (0)171 580 6507

Telex:
8953474

E-mail:
s.scutt@lshtm.ac.uk

Can you help again?

To see if our questions work well we need to ask some women to fill them in again. The idea is that women should be able to give the same answers on two different occasions if the questions are good. If the questions are not good it is more difficult to do this.

Would you be happy to fill in another of these questionnaires in a few weeks time? As with this questionnaire, we would post it to you at home and include a stamped addressed envelope. You would also receive a Boots voucher as a thank you for your extra help.

If you would be happy to complete the questionnaire again, please tick the "yes" box below: If not, please tick "no".

☐ Yes, I would be happy to fill in the questionnaire again

☐ No, I do not wish to fill in the questionnaire again

All information you give is STRICTLY CONFIDENTIAL

Thank you for your help

Can you help again?

To see if our questions work well we need to ask some women to fill them in again. The idea is that women should be able to give the same answers on two different occasions if the questions are good. If the questions are not good it is more difficult to do this.

Would you be happy to fill in another of these questionnaires in a little while? We would post the questionnaire to you at home and include a stamped addressed envelope. You would also receive a Boots voucher as a thank you for your extra help.

If you would be happy to complete a questionnaire at home, please fill in your name and address below. If not, just leave blank.

Name: _____

Address: _____

_____

_____

_____

All information you give is STRICTLY CONFIDENTIAL

Thank you for you help

Dear

RE: Circumstances of Pregnancy Study

Thank you very much for filling in our questionnaire recently and for offering to help us again by completing the questionnaire a second time. The reason we ask women to fill in the questionnaire again is to see if our questions work well. The idea is that women should be able to give the same answers on two different occasions if the questions are good. If the questions are not good it is more difficult to do this. Your answers will help us find this out.

Please fill in and return the questionnaire in the stamped addressed envelope as soon as you can - ideally by _____. As a small thank you, we will send you a £5 Boots voucher by return of post.

All information you give is strictly confidential. If you have any questions about the study, please ring the number below.

Thank you very much for your help.

Yours sincerely,

Geraldine Barrett

Sexual Health Programme, University of London,
Tel. freephone 0800 3892660 or 020 7927 2268

Isaac Manyonda, Consultant
St George's Healthcare NHS Trust, London SW17

Consortium for Research into Reproductive and Sexual Health

London School of Hygiene & Tropical Medicine (University of London)
Keppel Street,
London WC1E 7HT

Telephone:
+44 (0)171 927 2036

Fax:
+44 (0)171 580 6507

Telex:
8953474

E-mail:
s.scutt@lshtm.ac.uk

crash

Dear

RE: Circumstances of Pregnancy Study

You may remember that some months ago you helped us with our study by filling in a questionnaire when you were in the antenatal clinic, and you were kind enough to say that you might consider helping again by filling in the questionnaire a second time. The reason we ask women to fill in the questionnaire a second time is because it is a way of finding out how good our questions are. If they are good, it should be easy to give the same answers on two separate occasions, even some months apart. If the questions are not good it is more difficult to do this. We would be very grateful if you could help us find this out.

Enclosed is the same questionnaire as before. If you are happy to help again, please complete the questions as fully and honestly as possible and return in the stamped addressed envelope. As a small token of our appreciation, we will send you a £5 Boots voucher by return of post.

If you have any questions about the study, please ring the number below. Also enclosed is an information sheet. All information you give is ***strictly confidential***.

Thank you very much for your help.

Yours sincerely,

Geraldine Barrett

Sexual Health Programme, University of London,
Tel. freephone 0800 3892660 or 020 7927 2268

Isaac Manyonda, Consultant
St George's Healthcare NHS Trust,
London SW17

Consortium for Research into Reproductive and Sexual Health

London School of Hygiene & Tropical Medicine (University of London)
Keppel Street,
London WC1E 7HT

Telephone:
+44 (0)171 927 2036

Fax:
+44 (0)171 580 6507

Telex:
8953474

E-mail:
s.scutt@lshtm.ac.uk

Education variables

Two questions were asked about education: the age women left full time education, and whether or not they returned to full or part time study. We added the second question during pre-testing after finding a large number of women had returned to study as mature students. The frequencies of the two questions are as follows:

Age left full time education:	**%**	**(no.)**
16 or younger	31.0	(202)
17	11.2	(73)
18	14.4	(94)
19	2.9	(19)
20	3.2	(21)
21 or over	28.6	(186)
still in education	7.5	(49)
missing	*1.15*	*(7)*
Returned to study:	**%**	**(no.)**
yes	33.9	(221)
no	56.8	(370)
missing	*1.7*	*(11)*
not applicable	*7.5*	*(49)*

We formed a crude composite variable, "edulevel", from these two variables. Women were recoded according to the following criteria:

school if eduleave = 16 and eduret = no or missing
eduleave = still in education, and age = 14, 15 or 16

post 16 if eduleave = 16 and eduret = yes
eduleave = 17
eduleave = 18 or 19 or 20, and eduret = no or missing
eduleave = still in education, and age = 17 or 18

higher if eduleave = 18 19 or 20, and eduret = yes
eduleave = 21 or over
eduleave = still in education, and age = 19 or over

The variable approximates to the level of education women reached, albeit a crude approximation. The frequency of "edulevel" is:

Educational level:	**%**	**(no.)**
School	23.3	(150)
Post 16	34.9	(225)
Higher/further	41.3	(269)
missing	1.1	(7)